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FACULTY OF ARTS AND SCIENCES HARVARD UNIVERSITY

Minute on the Life and Services of Professor Allyn Abbott Young

THE following minute on the life and services of Allyn Abbott Young, Professor of Economics, was placed upon the records of the Faculty of Arts and Sciences at the meeting of April 16, 1929:

Allyn Abbott Young was born at Kenton, Ohio, September 19, 1876. He was of New England stock, his forebears English on both sides. The family was intellectual; the father, a brother, and a sister, were teachers of high quality. His undergraduate work was done at Hiram College, Ohio, where he graduated in 1894. After taking his Ph.D. degree at Wisconsin in 1902, he entered on a remarkably varied academic career, at Western Reserve University, Dartmouth College, the University of Wisconsin, Stanford University, Washington University (St. Louis), Cornell University, Harvard University, and the London School of Economics. At each institution he left an abiding mark, and from each he was drawn to the next not only by the prospect of higher position and more congenial work, but by a certain spirit of adventure. His was a wide-roving disposition; the trait showed itself not only in the many shifts of his career but in the range of his scholarly work. It was this trait which explains the very last move, which ended so tragically. He had cast his lot with Harvard University for good—of this he and his associates had no question—when he was asked to accept the Professorship of Political Economy at the University of London. Brought into close personal touch with European statesmen and economists in the course of his service on various committees and organizations dealing with the post-war problems in economics and politics, he had made on them the impression of signal competence which never failed. Hence the London invitation. It proved tempting, not only because of the attraction

and strength without stint. Probably he gave too much; more could have been achieved for the world and for himself if he had been firmer in saying no. One of the things that tempted him to the London adventure was the prospect (which he thought he saw) of less distraction and greater leisure. But he remained the same, attractive and outpouring, and in London as elsewhere men of all degrees and kinds, students, colleagues, notables in every field, turned to him. Invitations to lecture and to take part in scientific discussions multiplied, posts of honor and duty were offered, and the expected freedom for his plans of independent work did not come. The besetting difficulty was his own charm, his own wide competence, his unfailing readiness. He died at the full height of his powers, lamented by a host of friends and admirers, and by none more than by those to whom he had endeared himself at Harvard University.

FRANK W. TAUSSIG,
CHARLES J. BULLOCK,
HAROLD H. BURBANK, *Committee.*

THE
QUARTERLY JOURNAL
OF
ECONOMICS

MAY, 1929

THE CURRENT LABOR POLICIES OF
AMERICAN INDUSTRIES

SUMMARY

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I

To the abundance of cheap immigrant labor are primarily attributable the two outstanding features of American labor policy before the war — the tendency to adapt jobs to men rather than men to jobs, and the policy of obtaining output by driving the workers rather than by developing their good will and coöpera-

tion.¹ The immigrants, being largely peasants or agricultural laborers, were available only for the least skilled industrial tasks.² The extraordinarily wide differential which thus came about between the wages of skilled and of unskilled labor gave managers a strong incentive to develop methods which demanded little skill and experience. This incentive was all the greater because training immigrants was extremely difficult when many supervisors could not speak the language of their men. Consequently managers displayed amazing ingenuity in adapting work to unskilled laborers, but manifested almost no interest in developing the men themselves.

There are several reasons why immigration encouraged the practice of driving workers rather than of developing their coöperation and good will.³ Differences in language and outlook between immigrants and their supervisors prevented even employers of good intentions from gaining the confidence of most of the workers, and hence their coöperation. On the other hand, the immigrants were easily driven because they came largely from oppressed classes or races among which a tradition of docility was well established, and because their lack of industrial experience and their ignorance of English made many of them reluctant to leave one job and look for another. And employers

1. In 1910, 48 per cent of all persons engaged in mining, 31.9 per cent of those engaged in manufacturing and mechanical pursuits, and 26.3 per cent of those engaged in transportation were foreign born. H. Jerome, *Migration and Business Cycles*, p. 46.

2. During the period of July 1, 1907, to June 30, 1923, 26.4 per cent of the immigrants declared their occupation as "laborers" and 25.1 per cent as "farm laborers." Jerome, p. 48. Nevertheless it is true that immigration played an extremely important rôle in supplying men for the skilled handicrafts — so much so that the decrease in immigration since 1915 has caused the problem of apprentice training to become acute.

3. There were, of course, other reasons for the drive system.

were able to prevent concerted resistance to drive methods by mixing workers of different, and often antagonistic, nationalities.

With labor policies so crude and simple, industrial relations were not believed to require the attention of highly paid experts. The handling of men was largely left to the department foremen, who were free to hire, "fire," and promote as they saw fit, who set piece rates, and who often possessed considerable discretion in fixing hourly rates of pay.

The European war caused net immigration to drop from 815,000 in 1913 to 50,000 in 1915 and 19,000 in 1916. It also created an intense demand for labor. The labor shortage was accentuated by the rapid spread of the eight-hour day,⁴ and later by the entrance of several million men into military service. Labor turnover roughly doubled,⁵ strikes increased from 1,420 in 1915 to 3,517 in 1916,⁶ and 4,450 in 1917,⁷ and union membership grew from 2,716,900 in 1914 to 3,508,400 in 1918 and 5,110,800 in 1920.⁸ Under these conditions the old drive policies no longer worked — they simply drove men to quit or to strike. Consequently employers suddenly became interested in gaining labor's good will. By the end of 1919, 71 enterprises voluntarily established

4. From 1914 to 1919, the percentage of employees in manufacturing who regularly worked no more than 48 hours a week increased from 11.8 to 48.7. United States Bureau of Census, *Census of Manufacturers*, 1923.

5. For the period 1913-14, the United States Bureau of Labor Statistics found a separation rate of 95 per cent and for the year ending June 30, 1918, of 183 per cent. P. F. Brissenden and E. Frankel, *Labor Turnover in Industry*, pp. 88-89.

6. *Monthly Labor Review* (April, 1916), pp. 13-18.

7. United States Bureau of Labor Statistics, *Handbook of Labor Statistics* (1924-26), p. 570.

8. Leo Wolman, *The Growth of American Trades Unions, 1880-1923*, p. 33.

shop committees through which employees could take up grievances with the management.⁹ Many firms began to provide their men with life insurance, and in some cases, with disability and sickness insurance. Sales of group insurance increased from \$45,474,000 in 1914 to \$178,336,000 in 1917, and \$425,574,000 in 1919.¹ The number of concerns which offered old-age pensions to their employees increased from 1914 to 1919. Prior to 1914, 145 old-age pension plans had been established in American industry. During the five years ending in 1919, 90 additional plans were instituted.² Most important of all, the control over labor in many enterprises was transferred from the foremen to a newly created executive, the director or manager of personnel.

The severe depression of 1920-21 suddenly changed the labor market from a sellers' to a buyers' market. Except for a few months in 1923, the market has remained continuously favorable to employers. The net immigration, it is true, has been less than before the war, but this has been more than counteracted by the enlarged flow of labor from farm to city; labor turnover has been low except for a short time in 1923; and, from 1920 to 1926, the total union membership in the United States dropped about 30 per cent. *In short, every aspect*

9. National Industrial Conference Board, *The Growth of Works Councils in the United States*, p. 10. Forty-nine of these committee plans were initiated in either 1918 or 1919. In addition, eighty firms had established shop committees at the order of the government.

1. New York Trust Company, *The Index* (May, 1927), p. 7. Group insurance is a plan by which a group of employees is insured. A master policy covering the entire group is issued to the employer, and individual policies are issued to the insured employees. The expense may be borne entirely by the employer or jointly by the employer and employees. The most usual type of group insurance is life insurance, but accident or sickness insurance is sometimes provided.

2. Pennsylvania Old Age Pension Commission, A. Epstein, *The Problem of Old Age Pensions in Industry*, p. 21.

of the post-war labor situation might be expected to cause employers to abandon their newly acquired interest in labor's good will and to revert to pre-war labor policies.

And yet, except in a few cases, this has not happened. On the contrary, the efforts to gain labor's good will have steadily grown. Shop-committee plans increased from 145 in 1919 to 385 in 1922 and 432 in 1926.³ Most of the group insurance now in effect has been sold since 1921.⁴ During the last five years, over 300 companies have instituted some form of stock purchase for their employees. Of the 370 private industrial pension plans now in existence, 72 were established between 1921 and 1925.⁵ Two thirds of 1,058 enterprises which give vacations with pay to manual laborers began the policy since the first of 1920.⁶ During the last ten years, industrial good will has been rapidly acquiring an importance in American business comparable to that which consumers' good will has long possessed; employers have been developing the same keen interest in the good will of their workers, the same willingness to make large expenditures in order to obtain it, that they have manifested toward the good will of their customers. The outstanding task of one who essays to account for the present labor policies of American industry is to explain why this interest in industrial good will has continued to grow, despite the shift of power in favor of employers; why, in other words, the passing of abnormal war conditions has not produced a reversion to pre-war labor policies.

3. An Advance Report of an Investigation of the National Industrial Conference Board on the Growth of Employee Representation in the United States, *Law and Labor*, ix (March, 1927), 61.

4. Prior to the depression of 1920-21, the largest sales of group insurance occurred in 1919, when \$425,574,000 was sold. In 1924, however, the sales were \$597,765,000; in 1925, \$998,784,000; and in 1926, \$1,050,605,000. New York Trust Company, *The Index* (May, 1927), p. 7.

5. A. Epstein, *The Problem of Old Age Pensions*, pp. 115-126.

6. *Law and Labor*, x (May, 1928), 113.

II

The failure of the change in the labor market to end the interest of business men in labor's good will appears to have been due to three principal reasons: (1) the dread of labor trouble; (2) the inability or the unwillingness of employers to reduce wages in proportion to the drop in wholesale prices; and (3) a better appreciation by managers of the relation between morale and the efficiency of labor.⁷

The employers' dread of labor trouble reached its apex in 1920. During the preceding six years, the labor movement had threatened the power of American employers more seriously than ever before. Trade union membership, as was stated above, nearly doubled between 1914 and 1920. Unionism even established itself temporarily in such open-shop strongholds as the Chicago packing plants, the mills of the United States Steel Corporation, and the shops of the Pennsylvania Railroad. The employers' alarm was accentuated by the belief that American labor was in danger of becoming radical — a fear that was fostered by the general strikes in Seattle and Winnipeg during 1919, the Boston policemen's strike, the great coal strike of 1920, and the support of the Plumb plan by the heretofore staid and conservative railroad brotherhoods. The dread

7. It is desirable to point out that ever since 1910 a foundation for better industrial relations was slowly being built up by the growing use of time and motion studies in setting piece rates. The intimate connection between time and motion study and labor policies has been inadequately appreciated. It is easy, however, to see why inaccurate methods of timing operations prevented satisfactory industrial relations. When a rate was based on too liberal a time allowance, a cut in the rate was, sooner or later, inevitable. Such cuts, of course, excited intense ill will. But they did more than this — they led workmen to restrict output, and this in turn led the management to use drive methods. Time study has tended to diminish driving by making rate cuts unnecessary.

of radicalism was encouraged by interested groups, such as the National Civic Federation and the National Security League, and even by Mr. Gompers and his lieutenants, who skillfully fostered the country's fears in order to present conservative unionism as a bulwark against irresponsible and dangerous groups.

Business men did not suddenly lose their fear of labor troubles when the collapse of prosperity filled the streets with job-seekers late in 1920. Even at the end of 1921, union membership was a million more than in 1914, and strikes, tho fewer than in the immediately preceding years, were still numerous. Furthermore, the precipitous drop of prices made wage reductions imperative, and every cut in wages increased the danger of trouble. At this particular time, however, many concerns were peculiarly unable to risk a strike because, during the boom period, they had speculated heavily in raw materials. When prices fell, these enterprises were left with a large floating indebtedness which they were under the necessity of liquidating as soon as possible. Consequently they were in no position to face the loss of production and the heavy expenses which a strike would entail. The double necessity of reducing wages and of avoiding strikes stimulated the interest of many employers in gaining labor's good will.

In some plants, especially those in which the workers were organized, wage reductions led to strikes, and, in many cases, the unions lost and were destroyed. It is extremely interesting to notice the effect of these victories over unions upon the personnel policies of the enterprises. The management was usually determined never again to be troubled by labor organizations. Accordingly, after driving out unions, many concerns immediately embarked upon carefully planned attempts to gain the good will of their employees. Some enter-

prises followed the destruction of unions with the creation of shop committees to represent the employees. The General Electric Company, the International Paper Company, and many of the railroads are examples. Especially noteworthy is the great interest which many railroads developed in the welfare of their shopmen following the great strike of 1922. Roads which had done little to cultivate the good will of their shopmen as long as the workers were organized suddenly became greatly concerned about good industrial relations when their men returned to work as non-unionists.

Another outstanding determinant of American post-war labor policy has been the inability or the unwillingness of employers to reduce wages in proportion to the fall in non-agricultural wholesale prices. Between 1920 and 1921, non-agricultural wholesale prices decreased about 31 per cent, and between 1920 and 1922 about 30 per cent.⁸ Had employers been more willing to risk labor trouble, they undoubtedly could have reduced wages in proportion to wholesale prices.⁹ But the fear of strikes, which has already been explained, checked the reduction in wages. The best measure of wage rates is hourly earnings. Between 1920 and 1921, the hourly earnings of factory workers decreased about 14 per cent

8. Handbook of Labor Statistics (1924-1926), p. 517. In addition, the physical volume of manufacturing dropped about 23 per cent between 1920 and 1921. (Federal Reserve Bulletin, xiii [February, 1927], 100.) By 1922, the physical volume of manufacturing had recovered to the 1920 level.

9. The willingness of employers to risk labor trouble in order to reduce wages should be carefully distinguished from their willingness to risk it in order to get rid of unions. The very fear of unions and radicalism which made business men over-reluctant to reduce wages made them over-eager to destroy labor organizations. Consequently, some enterprises recklessly courted costly shut-downs in order to drive out unions, and others timidly refrained from making urgently needed wage reductions.

and between 1920 and 1922 about 19 per cent.¹ Wage rates undoubtedly dropped somewhat more — possibly from 20 to 25 per cent between 1920 and 1922.

Having failed to reduce wages in proportion to the fall in prices, employers were compelled to make their men more efficient. This might have been done by reverting to pre-war methods; but the same dread of strikes which prevented more drastic wage reductions made many managements unwilling to try driving. One course remained — to increase efficiency by developing a stable force and by winning the good will and coöperation of the men. This alternative was widely adopted.

Possibly the most important determinant of post-war labor policies, at least during the last four or five years, has been the growing realization by managers of the close relationship between industrial morale and efficiency. When the severe drop in prices and in sales during 1920 and 1921 caused managers to search meticulously for methods of cutting costs and of increasing sales, many ways were found in which the workers could help *if they would*. Spurred by financial necessity, managers sought the aid of their employees to an unprecedented extent in saving material, reducing the wear and tear on equipment, diminishing the amount of spoiled product, improving the quality of workmanship and even in soliciting additional business. Some concerns, such as the Bethlehem Steel Corporation and the International Harvester Company, have used their shop committees to reduce costs. The committees have suggested ways of saving labor and materials, they have made improvements in the location of tool rooms and

1. National Industrial Conference Board, *Wages in the United States, 1914-1927*, p. 29.

in the methods of issuing tools, they have helped increase the value of scrap by segregating materials of varying composition, and they have assisted in raising the quality of workmanship.² The Bethlehem Steel Corporation has attempted to interest its employees in saving supplies by calling attention through its committees to the expense of certain things which are often wasted.³ Public utility companies have endeavored to interest their employees in the more accurate reading of meters and computation of monthly bills. The People's Gas Light and Coke Company of Chicago is an example. Altho ten operations are necessary to prepare the bill for each reading, the company reports that in 1926 the errors in meter reading and billing were only about .007 per cent.⁴ The Chicago Motor Coach Company and the Boston Elevated Railways have conducted fuel-saving campaigns among their employees. Possibly the most notable attempts to gain the help of employees have been made by the railroads. Almost all roads have instituted fuel-saving campaigns among the engineers and firemen. Many have sought to reduce damage to equipment and freight by appealing to the train crews for smoother handling of cars and to the freight-house employees for more careful handling of less-than-carload shipments.⁵ A number of companies have sought the

2. Bethlehem Review (April 22, 1925), p. 3.

3. For example, the company calls attention to the fact that in 1925 its expenditures for soap were \$8,161; paper towels, \$14,780; brooms, \$17,255; window glass, \$25,855; shovels, \$30,000; electric light bulbs, \$200,000. Bethlehem Review (April 24, 1924), p. 4.

Following the success of the union-management coöperative plan on the Baltimore and Ohio, the Canadian National, and other railway systems, several roads have sought to develop a coöperative plan in conjunction with their "company unions." The Atchison, Topeka and Santa Fe and the Union Pacific are examples.

4. People's Gas Light and Coke Company, Year Book (1927), p. 15.

5. Between 1920 and 1927 payments on loss and damage per carload of revenue freight decreased from \$2.66 to \$0.72. To a small extent this was due to the drop in the price level.

aid of the shopmen in increasing the locomotive mileage per engine failure. Some roads now post the mileage per engine failure in the roundhouses, and the Rock Island publishes the figures by divisions in its monthly magazine. Efforts have also been made to interest the shopmen in reducing the number of locomotives found defective by the federal inspectors,⁶ and to gain the co-operation of all employees in improving the "on time" performance of both passenger and freight trains. The Erie, the Missouri Pacific, the St. Louis and San Francisco, the Southern, and the Chicago and Great Western now announce in their monthly magazines the percentage of passenger trains arriving "on time"; the Rock Island publishes the "on time" performance of both passenger and freight trains and also a list of the trains which have maintained perfect records; and the New York Central publishes the percentage of less-than-carload shipments which arrive on time.

Of course, the efforts of managements to reduce costs and to increase sales by persuading wage earners to go out of their way to help would not have persisted had the results not been satisfactory. But the workers responded to appeals for their help with almost startling generosity. And naturally this response has profoundly affected the labor policies of employers. The more

6. Some indication of the improved morale and increased efficiency in the railroad shops is given by the decreasing proportion of locomotives found defective by the federal inspectors. In the year ending June 30, 1923, when the percentage was affected by the shopmen's strike in the summer of 1922, 65 per cent of the locomotives inspected were found defective and over 10 per cent were ordered out of service. In the next year, the percentage of defective locomotives dropped to 53 per cent; in the year ending June 30, 1925, to 46; in the year ending June 30, 1926, to 40; and finally, in the year ending June 30, 1927, to 31 per cent. The percentage of locomotives ordered out of service dropped from 8.8 in 1923-1924 and 5.0 in 1924-1925 to 3.6 in 1925-1926, and 2.6 in 1926-1927. The Interstate Commerce Commission, Sixteenth Annual Report of the Chief Inspector, Bureau of Locomotive Inspection (1927), p. 1.

plainly the workers have demonstrated the value of their coöperation, the greater has become the interest of managers in labor's good will. During the war, and to a great extent during the post-war depression, managers sought labor's good will largely in order to avoid labor trouble. As the fear of strikes has diminished and as labor has demonstrated its willingness to coöperate, the desire for labor's help has become the most important single influence molding the labor policies of American employers.

III

The methods by which industrial enterprises have attempted to make their workers more efficient and more contented fall into six principal groups: (1) helping their employees acquire property; (2) helping them acquire a "stake" in the enterprise by which they are employed; (3) protecting them against arbitrary treatment; (4) rewarding continuity of service; (5) giving them opportunities to advance to more responsible positions; (6) giving them security.

The rise of about 11 per cent in the real hourly earnings of factory workers between 1920 and 1925 led to a great increase in saving among wage earners.⁷ It was natural that the growing tendency of employees to save should be encouraged by business men. The disposition of employers to foster saving was stimulated by their fear of radicalism and by a somewhat naïve faith in the power of even small amounts of property to alter the

7. From 1921 to 1926, saving deposits in banks and trust companies in the United States increased from over \$16,500,000,000 to nearly \$24,700,000,000; and between 1921 and 1925 the assets of building and loan associations increased from \$2,890,000,000 to \$5,509,000,000. (Statistical Abstract of the United States [1926], pp. 263 and 267.) It is impossible to say what proportion of the increase was in the savings of wage earners, but these savings probably increased as rapidly as deposits in savings banks.

fundamental economic views of its owners.⁸ But even the small amounts of property may influence the economic philosophy of wage earners less than most employers believe, the stimulation of saving is undoubtedly good personnel policy, because a man who is setting aside a small part of his earnings each week cannot escape feeling that he is getting ahead, even tho slowly. This may not make him satisfied with his compensation, but it is likely to take the edge off his dissatisfaction.⁹

The most usual method of encouraging saving is for the employer to obtain an authorization from the employee to deposit to the employee's credit in a savings bank a stipulated deduction from his pay. The employee escapes the temptation to spend his money before he has made a deposit of part of it, and he even avoids the trouble of going to the bank. This plan is followed by the Crompton and Knowles Loom Works. After five years, 80 per cent of its 2,500 employees were participating in the arrangement.¹ Some enterprises offer to hold the savings of their employees. In such

8. For example, Mr. John F. Tinsley, vice-president of the Crompton and Knowles Loom Works, says: "Through a savings plan the employers make more capitalists among the wage earners and I think all must feel that this is a desirable end. The more the wealth of the country is distributed, the less socialistic will be the tendencies among the masses of our people." (*New Phases of Industrial Management*, p. 194.) Mr. C. J. Hicks, executive assistant to the president of the Standard Oil Company of New Jersey, writes: "The employee who is saving his money becomes a capitalist and is no longer hostile to capitalism." (*Harvard Business Review*, ii [January, 1924], 200.)

9. It is true also that the desire to save is likely to increase the efficiency of piece- and bonus-workers, who constitute about half of the employees engaged in manufacturing. (See result of an investigation which I made of this point, and which was published in the *American Economic Review*, xv, Supplement [March, 1925], 94-95.) But, strange to say, I have been unable to discover a single case in which it is acknowledged that saving is encouraged because of the expected effect upon the efficiency of piece workers.

1. J. F. Tinsley, *New Phases of Industrial Management*, p. 176.

cases, the company usually pays the same rate of interest that it would pay a commercial bank for a loan — usually one or two per cent more than the rate paid by savings banks on time deposits. This is the practice of the Commonwealth Edison Company of Chicago, which has an "Employees' Saving Fund," to which, at the end of 1926, 5,165 of its 9,900 employees were subscribers.² An exceptionally high rate of interest is paid by the General Electric Securities Corporation which sells its bonds to the employees of the General Electric Company. The bonds pay 6 per cent, to which is added 2 per cent as long as the owner is in the employ of the General Electric Company. Thirty-two thousand employees, or nearly half the force, have purchased these bonds.³

Many workers wish not merely to save, but to save in order to acquire homes. From the standpoint of the employer, it is more desirable that an employee have a house which is partly paid for than that he have several hundred dollars in the bank. A man who owns a house near his place of work is more or less tied to his job, unless there are other plants nearby at which he could pursue his occupation. And, more important, a worker who is buying a home is careful to avoid discharge, unlikely to resign (unless he is confident of promptly obtaining another job) or to strike, and more eager to increase his earnings and hence his efficiency. Since the payments on a house usually extend over years, the encouragement of home ownership is an effective way of diminishing the independence of the workers.

Home ownership is encouraged by selling houses or land to employees at low prices, by assisting employees to finance the acquisition of property, by giving free

2. Commonwealth Edison Company, Annual Report (1926).

3. General Electric Company, Thirty-Fifth Annual Report, p. 21.

legal and architectural help, and by establishing building and loan associations among employees. The Eastman Kodak Company has built houses in small groups and has sold them at prices which gave the workers the benefit of the economical multiple construction.⁴ The Commonwealth Steel Company appraises the land and examines the title without charge, and lends money at 5 per cent, repayable in monthly installments.⁵ The Oneida Community sells land at a low rate, provides the services of an architect, assists the employee to borrow from a bank on a first mortgage, and itself lends him money on a second mortgage. On completion of the house, the company gives the worker a bonus of \$200. To receive assistance, the worker must have saved ten per cent of the cost of the house.⁶ The Bethlehem Steel Corporation guarantees or purchases the second mortgage on the property, and gives the employee free architectural, engineering, financial, and legal advice.⁷ The Milwaukee Electric Railway and Light Company has established a mutual savings, building, and loan association for its employees. The assets of the association exceed \$8,000,000 and more than four-fifths of the married male employees own their own homes.⁸

4. *Law and Labor*, ix (May, 1927), 133.

5. *The Commonwealth*, xiii (June, 1927) 3.

6. Esther Lowenthal, "The Labor Policy of the Oneida Community, Ltd.," *Journal of Political Economy*, xxxv, 122.

7. Presidential Address of C. M. Schwab before the American Society of Mechanical Engineers, December, 1927, *Law and Labor*, x (January, 1928), 18.

8. *The Milwaukee Electric Railway and Light Company, Year Book* (1926), p. 41.

It seems clear, however, that in some cases the employees who have been assisted to acquire houses have almost exclusively been minor officials of the company or higher paid, skilled employees. For example, by the end of 1926, the General Electric Company had assisted 1,125 of its 75,000 employees to purchase homes. (General Electric Company, *Thirty-Fifth Annual Report*, p. 21.) Furthermore, the average value

From encouraging employees to save, it is a short step to encouraging them to invest their savings in stock of the enterprise which employs them. Some business men and personnel experts have acquired amazing faith in the power of a few shares of stock to make workmen interested in efficiency and unwilling to join trade unions or to strike. Mr. Glen A. Bowers of the Industrial Relations Counselors, Inc., has stated that employee stock ownership "makes the worker a capitalist in viewpoint and this renders him a conservative and immune from radical ideas";⁹ Mr. F. H. Sisson, vice-president of the Guaranty Trust Company, that diffusion in the ownership of industry "will decrease class-conscious antagonism by bringing about a partial identification of interests as between laborers and capitalists," and "will discourage the propagation of dangerous and violent social theories";¹ and Mr. T. E. Mitten of the Philadelphia Rapid Transit Company, that "if the principle were applied to all industry, America would within a year become a strike-proof nation."² During the last seven years nearly all of the largest enterprises in the country have made special efforts to sell stock to their employees.³

of the houses which the employees were assisted to purchase was \$8,000 — distinctly more than most wage earners could afford. So far as the effect on labor turnover is concerned, it is probable that the workers who have purchased houses are those who are most inclined to be stable, and who in many cases would probably purchase homes without aid from their employers.

9. *New Tactics in Social Conflict*, p. 4.

1. *General Electric News*, Lynn Works, ix (December 2, 1927), 9.

2. *Philadelphia Rapid Transit Company, Service Talks*, vii (Sept. 28, 1926), no. 21.

3. In order to induce the employees to invest, the shares are often offered at substantially less than the market price. The Union Oil Company of California sold stock to its employees at 5 per cent below the market; the Electric Storage Battery Company at about 20 per cent below. The American Telephone and Telegraph offered stock to its employees in 1925 at \$125 a share. The range of the market price for

No recent development of personnel practice has attracted wider attention than employee stock ownership. And yet it is among the least significant of the new labor policies. When a large proportion of employees owns stock, the ground is undoubtedly prepared for the management to insist upon better workmanship or more output, and, in consequence, the task of improving the efficiency of the force may be somewhat easier.⁴ But unless the management demands greater efficiency, stock ownership alone is not likely to produce it. Nor is there any real evidence that a few shares in a huge corporation affect the fundamental economic views of the worker, cause him to "feel himself a partner rather than a servant," render him a "capitalist in viewpoint" and "immune from radical ideals," or make him less willing to join a trade union or to strike for higher wages.⁵ As a matter of fact, it

that year was from \$130 to \$145. Early in 1926, the Pullman Company sold stock at \$140. The low for the year on the New York Exchange was \$145½ and the high was \$199½. Several of the Standard Oil Companies gave the employee a share for every two that he purchased. This, of course, amounted to selling the stock at one third below the nominal price. In still other cases, employee stockholders are paid a special bonus, in addition to regular dividends. General Motors Corporation and the International Harvester Company pay a bonus of \$2 a share for five years after the employee has paid for his stock; E. I. du Pont de Nemours and Company pays \$3; the Bucyrus Company pays a bonus of \$5 a share for five years, regardless of whether or not the stock has been paid for.

4. In a large number of cases, the proportion of employees owning stock is very large: for example, Bethlehem Steel Corporation, over 60 per cent (Bethlehem Review [February 1, 1926], p. 3); the Commonwealth Edison Company, 43 per cent; the Standard Oil Company of California, 86 per cent of 14,200 eligible employees; the Standard Oil Company of Indiana, 71 per cent of 22,000 eligible employees. (Foerster and Dietel, *Employee Stock Ownership in the United States*, pp. 115, 138, 160, 161.)

5. The defeat of a carpenters' strike in Reading, Pennsylvania, is said to have been aided by the refusal of some carpenters to participate because they owned small blocks of stock and considered themselves "members of the firm." (Labor Age, xiv [July, 1927], 24.) But it is obvious that the carpenters may have given this reason to justify a

would be surprising if these results occurred. During 1927 the average factory worker in the United States earned \$1299. In order, therefore, to possess an interest as a stockholder which approximates his interest as a wage earner, the typical factory worker would need about \$20,000 of stock. The National Industrial Conference Board has found that the average subscription in 315 corporations is only \$1,300.⁶ It is scarcely conceivable that the ownership of twelve or thirteen shares would materially alter the attitudes of employees toward wages, hours, or working conditions. Suppose that a man earns \$1,200 a year and that he has purchased thirteen shares of \$100 each. Dividends at the rate of seven per cent yield him \$91 a year. Assume that the men seek a 10 per cent advance in wages. The company replies that such an increase would necessitate cutting dividends in half, a loss to the employee-stockholder of \$45.50 a year. But a 10 per cent advance in wages would give him \$120 a year. Is it likely that the title to thirteen shares of stock would diminish his interest in

refusal which rested upon other grounds — probably upon a conviction that the strike would fail. In any event, the effect of a share in a *small* enterprise sheds little light on the probable effect of a share in a large concern. For example, the fact that the photo-engravers' union has found it desirable to prohibit its members from buying shares in the small shops which are typical of the photo-engraving industry, or that the International Ladies Garment Workers' Union has experienced difficulty in controlling the small shops manned by working partners and known as "social shops," is scarcely indicative of how a worker will be affected by a \$1,000 interest in a billion-dollar enterprise such as the United States Steel Corporation or the General Motors Corporation.

6. The New York Trust Company, *The Index* (October, 1928), p. 8. Many enterprises limit the number of shares which will be sold to an employee under the stock-purchase plans. The Great Atlantic and Pacific Tea Company restricts subscriptions to one-tenth of the employee's annual earnings; E. I. du Pont de Nemours and Company to one-fifth; and the General Motors Company to one-third. The American Telephone and Telegraph Company permits each worker to purchase one share for each \$300 of his annual earnings; the Bethlehem Steel Corporation, one for each \$400; and the Electric Storage Battery Company and the Pullman Company, one for each \$500.

higher wages or prevent him from joining a union or from striking in order to get them?

The traditional drive system of management naturally gave rise to many methods of handling labor which created ill will and resentment. In order that enterprises should gain the good will of their men, it was necessary for them to effect substantial improvements in the practices of foremen and other minor executives in dealing with labor. Three principal methods have been used: (1) centralization of control over discharges; (2) foreman training; (3) shop committees. These efforts to improve the handling of men are among the most important developments in American personnel practice.

Of the three methods, that used most extensively has been the transfer of authority to discharge from the foreman to the head of the labor department. In some cases the foreman is permitted to dismiss men from his own department but not from the service of the firm; in others, the approval of the labor manager is necessary even to remove a worker from a department. Some companies, including several of the Standard Oil companies and the Boston Rubber Shoe Company, forbid discharge for the first offense except in the case of a few serious acts which are listed in the book of rules. Restricting the freedom of the foreman to discharge has profoundly affected his methods of handling men because it has deprived him of his chief disciplinary device. This has compelled him to rely less upon threats for obtaining results and to make greater efforts to get along amicably with his men. The consequence naturally has been a drop in the number of petty grievances.⁷

7. As a matter of fact, labor managers almost invariably approve the discharges which the foremen recommend. Nevertheless, the centralization of authority over discharges has a profound effect because the foremen interpret it to mean that discharges are not desired.

The eagerness of managers to improve the handling of men has led hundreds of enterprises during the last seven or eight years to establish classes in foremanship. Swift and Company, for example, have put 4,600 of their foremen through a training course. The United States Chamber of Commerce has a record of 324 foremanship courses (exclusive of correspondence courses) conducted during the year ending in June, 1926, and of 933 in the year ending June, 1927.⁸ So rapid has been the spread of foreman training, that concerns have been created to conduct classes on a commercial basis, and some trade associations, such as the National Metal Trades Association, have prepared courses for their members.⁹ Of less importance than classes on foreman-

The restrictions upon the freedom of foremen to discharge might be expected to reduce the number of discharges, and to some extent this result seems to have occurred. For example, during the period 1910 to 1915, the United States Bureau of Labor Statistics found a discharge rate of 17.5 per cent among 153 establishments. (P. F. Brissenden and E. Frankel, *Labor Turnover in Industry*, pp. 80-81.) Among 78 plants, I found a discharge rate of 12.5 per cent during the period 1910 to 1913. (*The Turnover of Factory Labor*, p. 94.) The Metropolitan Life Insurance Company, however, found a discharge rate of only 6.5 per cent among 300 plants for 1926, and of 5.5 per cent for 1927. (*Handbook of Labor Statistics [1924-1926]*, p. 585, and *Monthly Labor Review*, xxvii [July, 1928], 27.)

But discharge rates based upon the average number of workers employed are somewhat misleading. Discharges vary with hirings as well as with the size of the force, because it is the newly hired men who are most likely to be discharged. The principal cause for the decrease in the discharge rate has been the decrease in the number of hirings. Compared with the number of hirings, however, discharges are not clearly less numerous now than before the war. For the period 1910 to 1915, the Bureau of Labor Statistics found one discharge for every 5.5 men hired; but, for the period 1910 to 1913, I found one discharge for every 8.3 men hired. For 1926, the Metropolitan Life Insurance Company found one discharge for every 8.4 hirings and, for 1927, one discharge for every 7.3 hirings.

8. U. S. Chamber of Commerce, *Growth of Foremanship Courses in the United States*, June, 1926, to June, 1927, p. 11.

9. The current methods of training foremen leave much room for improvement. The situation has been well described by Mr. L. A. Hartley: "It is well to observe here that many of the foreman training

ship, but significant of the trend of the times, are the special handbooks for foremen, such as the Bethlehem Steel Corporation's *Hints to Foremen*, the Scoville Manufacturing Company's *Foremen's Manual*, and, most elaborate of all, the Lehigh Coal and Navigation Company's *Mine Management Policies*, running, in the revised edition, to 117 pages.

These policies with regard to foremen — depriving them of authority to discharge and training them in better methods of handling men — do not entirely eliminate grievances. The steady increase in the number of shop committees since 1921 indicates that many managers recognize the undesirability of permitting grievances to smolder unadjusted. The disposition of the cases handled by these committees is significant. Mere statistics, of course, cannot prove that employees are obtaining justice, but the many decisions in favor of the men suggest that managers consider it wise to be fair in at least a substantial proportion of the cases. The Bethlehem Steel Corporation reports that, out of 2,316 cases, 1,682, or over two-thirds, were settled in favor of the employee.¹ Of more than 1,800 matters considered by the plant assemblies of Swift and Company prior to 1925, about 70 per cent were settled in favor of the employee.² At the Lynn works of the General Electric Company, 274 cases were settled by the shop committee in the first two years: 76 were decided in favor of the employee, 99 in favor of the management,

activities conducted at present throughout the country are open to considerable question as permanent methods. The success of the short, intensive foreman training conferences is due very largely to the fact that the present methods of foremanship have been so generally poor that almost any kind of a discussion of present problems is helpful." (Chamber of Commerce of the United States, *Employee Training*, p. 17.)

1. John Calder, *Five Years' Representation Under the Bethlehem Plan*, *Iron Age*, cxi, 1,694.

2. Swift and Company, *Year Book* (1925), p. 51.

7 were compromised, 21 were withdrawn, 14 were not considered, and 52 were submitted to other authorities for decision.³ Out of the 45,930 cases considered by the employee committees of the Pennsylvania Railroad during the four years ending 1924, 21,904, or 47.7 per cent, were adjusted or compromised in favor of the employee; 13,320, or 29 per cent, were withdrawn or decided against the employee, and 10,693, or 23.3 per cent, were appealed to the next higher officer.⁴

The acute scarcity of labor during the war caused employers to discover the importance and the cost of labor turnover. The post-war drop in prices, which compelled managers to hunt for every possible way of cutting costs, accentuated the interest of managers in reducing labor turnover. One of the outstanding features of recent American personnel policy, therefore, has been the endeavor to increase the efficiency of labor by encouraging continuity of service.

Many of the recent developments in personnel practice — such as group insurance, old-age pensions, promotion of home ownership, protection of employees against arbitrary treatment, and vacations with pay — have the encouragement of continuous service as *one* of their purposes.⁵ Of special importance, however, are

3. E. H. Morell, *The Lynn Plan of Representation*, chart no. 3. But the most significant thing about these figures is the small number of cases which arose during a period of two years in a large force. The conclusion appears to be inevitable that the shop committees failed to command the confidence of the employees, or that there were other more satisfactory ways of having grievances adjusted.

4. *Pennsylvania Railroad Company, Employee Representation*, p. 47.

5. Except possibly in the case of the encouragement of home ownership, the predominant purpose is not to encourage continuous service. A principal object of insurance and pensions is to provide a regular way of dealing with situations which have often subjected employers and their men to appeals for charity and which have been injurious to morale.

specific rewards for continuous service. Many enterprises now advance the wages of workers at given intervals of employment. The Oneida Community, Ltd., adds one per cent to the worker's wage at the end of the month. This rises by gradual increments to 5 per cent in twelve months, 7 per cent in two years, and 10 per cent in five years.⁶ The Eastman Kodak Company pays a wage dividend which is affected by the employee's length of service. For every dollar in excess of the first dollar paid in dividends on common stock, the company pays a wage dividend of \$5 on every \$1,000 earned by the worker in the preceding five-year period. The company is now paying \$8 on its common stock. This makes the wage dividend \$35 for every \$1,000 earned by each employee during the last five years of service.⁷ The Studebaker Corporation pays a bonus of 5 per cent of the worker's last year's earnings on each anniversary of his service, and the Crocker-McElwain Company a differential for each year of service up to five, when the worker becomes eligible to apply for a written agreement guaranteeing him full employment.⁸

One of the most effective ways of encouraging continuous service is to transfer men, after a given period of employment, from the hourly to the monthly pay roll, thus giving them the privileges enjoyed by the regular salaried staff. This is done by the Commonwealth Edison Company of Chicago at the end of a year's service. An employee on the hourly pay roll who is absent a day or so for some reason other than sickness is not compensated, but the man on the

6. Esther Lowenthal, *Journal of Political Economy*, xxxv, 118.

7. *Law and Labor*, ix (May, 1927), 132. An official of the company says: "We believe that the payment of these wage dividends has resulted in greatly reduced labor turnover and increased loyalty and efficiency of employees."

8. "Stabilizing Employment Plans," *Law and Labor*, viii (May, 1926), 140.

monthly pay roll receives full pay. A worker on the monthly pay roll who becomes ill or is injured receives *full* pay for seven working days. Thereafter, until he returns to work, he is paid a *portion* of his salary. The hourly man is given half of his normal wages for the first seven days of his incapacitation, but after this receives nothing.⁹ Most important of all is the fact that the worker who is on the monthly pay roll feels that he has a permanent job, because reductions in staff are made by first laying off the hourly men. The Standard Oil Company of California also places all employees, regardless of their work, on a monthly salary after a year's service. Every salaried employee, whether common laborer or manager, receives the same privileges — an annual vacation of two weeks with full pay, a pension after a number of years of service, and compensation during sickness and recovery from accident for a certain period depending upon the length of employment, but regardless of whether the sickness or accident was incurred in line of duty.¹ Most effective of all rewards for continuous service is a definite guaranty of steady employment to workers who have served a given time. The Crocker-McElwain Company, for example, guarantees full-time work to each man who has been in its employ five years or more.²

A highly significant recent development in American personnel policy has been the creation of definite sequences of promotion and the filling of vacancies in accordance with merit. The mere transfer of the control of hiring and firing from the foreman to the labor manager has tended to bring about advancement on the basis of merit. As long as each foreman hired and pro-

9. Letter from the company to the writer.

1. W. J. Held, *Forbes Magazine* (June 1, 1925), pp. 261-262.

2. *Law and Labor*, viii (May, 1926), 139.

moted his own men, many vacancies were filled, not by promotions, but by hiring new men. In fact, many foremen preferred not to promote their best men. The better a man performed an operation, the more anxious the foreman was to keep him at it, because it meant one less job to worry about. Some foremen deliberately gave the best places to friends. This was done partly out of friendship, but partly also because a group of friends sprinkled throughout the force made the department easier to manage.³

The labor manager, on the other hand, has no reason to refuse to promote a worker simply because the man is especially good at a certain job, nor is he seriously tempted to promote on the basis of friendship, because, as a rule, he is intimately acquainted with relatively few wage earners in the plant. In addition, the spread of the policy of promotion by merit has been stimulated by two special causes — the desire to keep down labor turnover and the necessity of adjusting labor costs to the post-war level. Studies of labor turnover revealed that many enterprises were losing good men because workers could obtain better jobs more easily by changing employers than by winning advancement. In order to encourage continuity of service, many labor managers have adopted the policy of hiring outsiders only for the least desirable jobs, and of filling the best jobs by promotion. This policy was still further stimulated by the drop of prices in 1920. In order to reduce labor costs in proportion to the fall in prices, it was necessary to provide every possible incentive for workers to be more efficient, and one incentive offered them has been the opportunity to win better jobs by merit.

3. Occasionally the foreman used his control of jobs to create a personal machine which rendered him more or less independent of his superiors. The firm could not discharge him without causing a large part of the department to quit.

Not only has advancement in accordance with merit spread rapidly, but many enterprises have established classes in which employees can prepare themselves for promotion. The Boston Elevated Company offers courses in business English, inter-departmental accounts, and automotive maintenance; the General Electric Company has a vast variety of courses of different grades, including machine design, blue-print reading, shop mathematics, armature winding, mechanical drawing, switchboard testing, and courses for clerical employees.⁴ The Milwaukee Electric Railway and Light Company has classes in car wiring, boiler room practice, and the company accounting system.⁵ Swift and Company report that on November 1, 1924, over 6,200 of its 50,000 employees were pursuing educational work offered by the company.⁶ This included physics, salesmanship, business English, and a general course — in which were enrolled 500 of the most promising young men in the production departments of thirteen plants — covering the policies and methods of the company.⁷ The Crompton and Knowles Loom Works, in the year 1923-24, had about 600 of its 2,500 workers enrolled in its evening courses on loom construction, mechanical drawing, blue-print reading, machine-tool operation, pattern making, molding, forging, welding, weaving, and the properties of iron and steel.⁸

Promotion in accordance with merit is of great importance, because the employee feels that he has more than a job — that he has the opportunity for a career,

4. General Electric Company, *Education Facilities for Employees of the General Electric Company*.

5. The Milwaukee Electric Railway and Light Company, *Year Book* (1926), p. 38.

6. Swift and Company, *Year Book* (1925), p. 52.

7. *Ibid.* (1923), p. 49.

8. J. F. Tinsley, *New Phases of Industrial Management*, pp. 103-105.

a chance to advance into jobs which he had dreamed of holding but which he could never see a way of reaching. And the workers who best appreciate the chance to win promotion by merit are likely to be the ablest and most ambitious in the force, precisely those who, if given no opportunity to advance, would be most active in organizing and leading trade unions. Unionism in the United States has always suffered because of the relative ease with which able wage earners could rise out of their class. Employers are now making advancement for superior workmen more attainable than ever before. In a generation or two, the effect upon the labor movement may be substantial.

Of the most recent developments in personnel practice by far the most important is the endeavor of employers to make the jobs of their men more secure. Why have managers suddenly acquired such a deep and genuine interest in the stability of employment? The severe unemployment of 1921 is not a satisfactory explanation, because the grave depressions of 1893, 1908, and 1914 aroused no similar interest. Four principal circumstances appear to explain the present concern of business men with the regularity of employment. Possibly the most important has been the desire of managers to reduce labor turnover — a desire which was created, we have seen, largely by the war boom. It is apparent that whatever is done to make jobs attractive can have little effect if the workers regard their positions as only temporary. Nor is there much point in encouraging continuity of service, if, at frequent intervals, one-fifth to one-third of the force is laid off. A second reason for the interest of managers in stability of employment has been the urgent necessity of increasing the efficiency of labor. The extreme inefficiency of labor during the war

and the great drop in prices during 1920 led managers to examine more carefully than ever before the causes of inefficiency. As a result, managers were profoundly impressed by the fact that many workers deliberately withhold production and use great ingenuity to conceal how little they are doing, because they fear that more output would mean less work. It was apparent to employers that this conscious restriction of output could be removed only by giving the men reasonable assurance of steady work. Finally, the interest of business men in security of employment was stimulated by their fear of radicalism and their desire for the good will of their men. Managers readily appreciated that nothing is more likely to make a workman radical than uncertainty of employment, and nothing more likely to keep him conservative than the prospect of steady work. And as business men studied the problems of creating industrial good will, they perceived that most wage earners are not contented unless they have steady jobs and that all efforts to gain labor's good will must rest upon a foundation of regular employment.

The methods by which business enterprises have endeavored to stabilize employment are too numerous to describe here.⁹ There is abundant evidence, however, that substantial results have been achieved. Thus, Procter and Gamble now guarantees its men 48 weeks of work in the calendar year. In consequence, labor turnover has dropped to the almost unheard-of rate of less than one per cent a month in a force of 6,500 men.¹ The Delaware and Hudson Railroad, by using a flexible working day and working week, has avoided laying off a single skilled worker since the plan was put into

9. For an excellent description of them, see Professor H. Feldman's book, *The Regularization of Employment*.

1. *Stabilizing Employment Plans, Law and Labor*, viii (May, 1926), 139.

effect in 1923.² During the anthracite coal strike, the entire shop force was kept engaged by working five days a week, and by making repairs in advance of the need for them. The best evidence of the general progress in stabilizing employment is the decrease in the lay-off rate. The United States Bureau of Labor Statistics, collecting data for the period 1910-19 and for the year ending June 30, 1918, found an average lay-off rate of 13 per cent in a group of 261 plants employing the equivalent of 691,681 full-time workers.³ For the period 1911-15, I found an average lay-off of 35 per cent among 78 plants employing 154,933 workers.⁴ On the other hand, in 1926, the median lay-off rate among the enterprises reporting to the Metropolitan Life Insurance Company was 6⁵ and, during 1927, 6.5 per cent.

The methods which have been discussed are the most important ways in which business men are endeavoring to make their men more efficient and more contented, but they are not the only ways. In concluding this description of personnel practices, it is desirable to indicate briefly a few of the many other methods by which enterprises are seeking to build up good will and efficiency. The Hammermill Paper Company provides garage facilities at a nominal figure, and sells gasoline to employees at one cent below the public filling-station price; the Spicer Manufacturing Corporation sells its men coal, gasoline, and oil;⁶ L. Bamberger and Company employ a lawyer to advise employees, without

2. *Stabilizing Employment Plans*, Law and Labor, viii (May, 1926), p. 142.

3. P. F. Brissenden and E. Frankel, *Labor Turnover in Industry*, pp. 80-81.

4. S. H. Slichter, *The Turnover of Factory Labor*, pp. 86 and 92.

5. United States Bureau of Labor Statistics, *Handbook of Labor Statistics (1924-1926)*, p. 585.

6. *Rules and Regulations* (April 21, 1924), p. 24.

charge, on legal matters;⁷ and the Hammermill Paper Company provides free notary service and aid in filling income-tax returns. A number of enterprises maintain dental dispensaries, which give free examination, advice, and temporary treatment, and, in some instances, as in the case of Bausch and Lomb Optical Company, do permanent dental work at low rates.⁸ Bausch and Lomb maintain an eye clinic, which gives examinations, and supplies frames and lenses far below cost;⁹ L. Bamberger and Company have a chiropodist, who visits the store hospital two days a week and does work at a nominal charge.¹ The Standard Oil Company of California has arranged for employees to obtain loans for restricted purposes at five per cent interest, using their stock in the company as collateral.² The Employee's Handbook of the Public Service Company of Northern Illinois says:³ "It is recognized that there are times when an employee may need temporary financial assistance, on which occasions the company stands ready to extend such assistance." Some personnel departments offer to advise employees in regard to personal problems. The Book of Information and Instruction for Employees issued by the Boston Rubber Shoe Company says:⁴ "The Industrial Relations Department will gladly help any employee who has a personal matter on which he wishes counsel, such as sickness in the family, financial problems, the purchase of or renting of a home, and so forth. . . . You should feel free to go to the office (with your foreman's permission, if during working hours), with the assurance that

7. Employees' Information Booklet, pp. 10-11.

8. Instructions for Employees (June, 1924), p. 7.

9. *Ibid.*, p. 7.

1. Employees' Information Booklet, p. 9.

2. Standard Oil Company (California), Bulletin (March, 1927), p. 5.

3. Page 22.

4. Pages 6-7.

your best interest will be served by so doing." The Employee's Manual of the Scoville Manufacturing Company ⁵ states that "it is the aim of the Industrial Service Department to render personal assistance to all employees in solving their personal problems. There are many instances when a situation can be faced more bravely and effectively if a friend is at hand to consult; the Employment Office undertakes to be such a friend." The Employee's Information Booklet of L. Bamberger of Newark ⁶ says: "If you need help or advice in finding a place to live, to board, to spend a vacation, or if you are worried about anything, consult with the Social Service Secretary, or see one of the Employment managers, or a member of the education department." Describing the personnel methods of the Commonwealth Steel Company, Mr. A. G. Morey says: "The men voluntarily bring many of their human problems to us, and a word of counsel, the use of our legal facilities, or other influences, have enabled us to be of service and advice to the men in many of their personal problems." ⁷ Among the cases recently handled by the employees' service division of the People's Gas Light and Coke Company of Chicago, were the following numbers of requests for several kinds of help: advice in investing money, 32; intercession for reduction of physicians' bills, 15; adjustment of difficulties with installment houses, 18; consultation on business affairs, 91; financial assistance in emergencies, 52; arrangement for hospital, surgical, or medical care, 190; advice in obtaining specialist for dental work, 22; advice in obtaining eye, nose, ear, or throat specialists, 43; assistance in drawing up wills, 33. ⁸

5. Edition of February 1, 1927, p. 25.

6. Page 10.

7. The Commonwealther, xiii (June, 1927), 4.

8. People's Gas Club News, xvi (November 15, 1928), 7.

IV

One of the best ways of appraising the significance of the new personnel methods is to ask in what degree they are responsible for the present labor situation in the United States. The situation is characterized by four outstanding features: (1) a spectacular increase during the last seven years in the physical production per wage earner; (2) a substantial drop in union membership; (3) a large decrease in the number of strikes; (4) a low rate of labor turnover. The new labor policies have played an important part in producing these results, but it seems reasonably clear that a far more important part has been played by general economic conditions.

Between 1919 and 1925, the per capita production of workers engaged in manufacturing increased about 37 per cent. In other lines of industry the increase was almost as great. To some extent this great increase is attributable to the new labor policies. The practice of promoting in accordance with merit has undoubtedly stimulated many workers to produce more; and the interest which employers have aroused in saving and home ownership has probably increased the efficiency of many piece- and bonus-workers. Of special importance has been the greater security of employment, for which the new labor policies are partly responsible. The job has ceased to be merely a temporary position which the worker is bound to lose soon, and has become a valuable piece of property which he can probably keep for the rest of his life, *provided he meets the management's standards of efficiency*. The fact that he now has something worth keeping has produced a radical change in

his willingness to do his best.⁹ Finally, the creation of industrial good will has undoubtedly tended to make men more efficient. Its effect, however, has probably been primarily indirect rather than direct. Employees who are well disposed toward their superiors are not, because of that fact, necessarily more industrious or more painstaking. But good will does render workmen more responsive to demands made upon them by the management, and thus it enables alert and aggressive executives to obtain better results from their men.

The most important causes for the increased production per worker, however, have not been personnel policies. Undoubtedly the greatest cause of all has been the elimination of inefficiencies which grew up during the war and post-war boom, when speed was all important and when less than usual attention was paid to costs. A second important cause for the greater output per worker has been the movement of prices, especially the downward trend of non-agricultural wholesale prices in general and of interest rates in particular, and the tendency of wages to fall less than other prices and, during the last five years, not to fall at all. The great fall of prices in 1920 and 1921 created an imperative necessity that enterprises quickly and drastically reduce costs. This led managers to search as they had never searched before for ways of obtaining more output from fewer men. Falling prices have also hastened the normal tendency for production to be concentrated into the newest plants. These, as a rule, are precisely those which are best equipped and in

9. Stabilized employment means that enterprises are hiring fewer men for temporary jobs. The result is that a man who loses his job finds employment more difficult to obtain and unemployment becomes a more serious matter. Thus stabilization of employment tends to discourage resignations and to increase the workers' fear of discharge or lay-off.

which labor is most effective. The pronounced downward trend of long-time interest rates since 1921, the rise in wages between 1922 and 1924, and the stability of wages since 1923 have made it profitable for employers to replace methods of production which require less waiting and more labor with methods which require more waiting and less labor. Such changes, of course, increase physical output per laborer. Finally, production per worker has been increased by the abundance of labor. This in turn is a result of the concentration of output in plants where labor is most effective, of the spread of labor-saving methods of production, of the depression in agriculture (which has accelerated the movement of men from farm to city), and of the failure of wages to fall with the decrease of wholesale prices. Despite the restrictions on immigration, therefore, the supply of labor has been large in relation to the demand.¹ Naturally, only the best workers have been hired and there has developed a serious unemployment problem among the older and the less efficient men. And because wage earners have found jobs none too easy to obtain, they have hesitated to resign and have improved their efficiency in order to avoid discharge.²

The second outstanding feature of the labor situation is the drop in union membership. Since 1920, the mem-

1. At certain times and in some places there have been serious labor shortages in the building trades. There was also a more or less general shortage for a few months late in 1922 and early in 1923.

2. The evidence does not appear to bear out the oft-repeated assertion that the increase in output per worker since 1919 is primarily due to the use of more machinery or of more power per worker. I have analyzed the evidence briefly in my article: "The Secret of High Wages," *New Republic* (March 28, 1928), liv, 183-185. To some extent the efficiency of labor has probably been affected by installment buying, because the desire to keep up monthly payments on cars, houses, and radios and at the same time to maintain customary standards of living has undoubtedly stimulated piece- and bonus-workers to increase their output.

bership of the American Federation of Labor has decreased about 30 per cent. This figure, however, is somewhat misleading because the building boom has enabled the building trades unions to grow. Between 1920 and 1923 the membership of 33 organizations which draw their adherents primarily from manufacturing dropped from 1,220,100 to 648,000, or nearly half. Between 1923 and 1926, despite the stability of the business situation, the membership of the same unions decreased nearly 18 per cent, from 648,000 to 532,000.

The precipitous fall in union membership between 1920 and 1923 was due principally to the withdrawals which normally accompany severe unemployment and to the break-up of unions after unsuccessful strikes. The failure of the strikes was, of course, due to the severe unemployment which prevailed throughout 1921 and most of 1922. About half of the drop in membership between 1923 and 1928 occurred in the International Ladies Garment Workers' Union, an organization which has been badly disrupted by the communists rather than by the employers. The remainder of the shrinkage after 1923 was caused primarily by the decrease of about 5 to 6 per cent in the number of workers engaged in manufacturing. Among the skilled craftsmen — who constitute the bulk of the union membership — the decrease was probably more than 5 or 6 per cent.

But have not the new personnel policies at least prevented the spread of unionism and thus are they not *indirectly* responsible for the fall in union membership? To this question the answer must be that the effectiveness of the new labor policies in checking the spread of unionism has not been tested, because in few cases has a determined effort been made to organize plants in

which the new policies are found.³ It is undeniable that during recent years the interest of wage earners in unionism has been weak, but this is most plausibly explained by the advance of about 11 per cent in the real earnings of factory workers between 1920 and 1926, and by the fact that, during most of the time since 1921, jobs (outside of the building trades) have been none too easy to obtain.

The third outstanding feature of the American labor situation is the drop in the number of industrial disputes from 3,630 in 1919 to 1,035 in 1926.⁴ The number of employees involved fell from 4,160,000 to 330,000.⁵ Undoubtedly the new personnel policies have tended to diminish strikes. But they are not responsible for this great decrease. Over four-fifths of the strikes in the United States are called by labor unions. The new methods of handling labor, however, have made greatest progress in non-union shops. Industrial disputes appear to be primarily products of price fluctuations. They

3. The first real test of the new personnel practices is likely to come in the railroad shops. During the war, the railroad shop workers were strongly organized, but the unions were driven out of about half the shops in the bitter strike of 1922. Many roads which destroyed the unions have adopted the new personnel methods — "company" unions, group insurance, employee stock ownership, and security of employment. It is certain that the shop-craft unions will soon endeavor to re-establish themselves on the unorganized roads. Because the tradition of unionism still remains among these workers and because the men are largely skilled craftsmen, the efforts to reorganize the shops should furnish a real test of whether the new personnel policies make workers satisfied to remain unorganized. Thus far the effort to organize the employees of the Interborough Rapid Transit Company in New York City is the most notable attempt to spread unionism among the employees of a company which practices the new methods of handling men.

4. The Handbook of Labor Statistics (1924-1926), p. 572. In 1917 there were 4,540 disputes, but the total number of employees involved was less than one-third the total of 1919.

5. *Ibid.*, p. 570. In the case of many of the smaller disputes, the number of employees involved was not reported. The figures given above include 2,665 disputes in 1919 and 783 disputes in 1926.

are most numerous when changes in the cost of living or in wholesale prices cause workers or employers to seek changes in the customary wage rates. The remarkable fewness of disputes since 1922 is primarily attributable to two facts: the stability of the cost of living and the failure of the rather substantial drop in non-agricultural wholesale prices since 1923 to produce a movement to reduce wages. For the latter fact, however, as will be pointed out presently, the new labor policies are in some degree responsible. Important also in reducing the number of disputes have been the increase in the real earnings of factory workers, and the weakening of many unions by the depression of 1921, so that they have been unable to undertake aggressive organizing campaigns.⁶

The fourth outstanding feature of the labor situation is the low rate of labor turnover. Before the war, turnover rates in manufacturing averaged in good years not far from 100 per cent. In 1926, a fairly active year, the Metropolitan Life Insurance Company reports a median turnover rate of 47 per cent among several hundred factories.⁷ In 1927, a less active year, the median rate was 41.4 per cent.

6. The reduction in the number of strikes since the abnormal war period has been world-wide and has been quite as great in other countries as in the United States. The National Industrial Conference Board has estimated the number of workers involved in strikes and lockouts per 1,000 of population as follows:

	1920	1927
United States	40 (in 1919)	3
Germany	135	6
Great Britain	63 (in 1919)	2
Belgium	40	5
France	35	2
Netherlands	10	2
Canada	16 (in 1919)	2

Only in Australia has there been an increase. There the persons engaged in industrial disputes were 19 per 1,000 of population in 1919-20, and 25 in 1927.

7. The Handbook of Labor Statistics (1924-1926), p. 585.

The protection of workers against arbitrary treatment, rewards for continuous service, and stability of employment have all, of course, tended to diminish turnover. Stabilization of employment has been doubly important. It has reduced turnover directly by decreasing the number of lay-offs, and indirectly by diminishing the necessity of hiring new men, among whom resignations and discharges are greatest.⁸ But the outstanding causes for lower turnover rates have not been personnel policies. The most important single influence has probably been the condition of the labor market — the relative abundance of men and scarcity of jobs which have existed (outside the building trades) almost continuously since 1920. This is indicated by the fact that for several months early in 1923, when there was a shortage of men, resignations underwent a spectacular increase.⁹ A second important influence has been the increasing efficiency of wage earners. Labor turnover is largely a function of hirings. It is greatest when forces are being expanded. The rising output per worker has made possible a gradual decrease in the number of men employed in manufacturing.¹ This has greatly diminished the number of hirings and consequently the turnover rate. A third reason for the small turnover has been the relative stability of wages since 1923. Resignations increase during periods of rising wages because men leave the plants which are slow in advancing wages to seek positions in plants which have increased their scales. This is well illustrated by the sudden jump in

8. The decrease in turnover tends to be cumulative, because as resignations and discharges decrease, hirings also decrease; consequently new jobs become more difficult to obtain and men become more reluctant to resign.

9. See *Handbook of Labor Statistics* (1924-1926), p. 585.

1. The number of factory wage earners decreased from 8,768,491 in 1923 to 8,351,257 in 1927. (*Statistical Abstract of the United States*, 1926, p. 745, and the *New York Times*, February 28, 1929, p. 12.)

the resignation rate during the late winter and the early spring of 1923. In this time occurred nearly half of the entire increase in hourly earnings which marked the business recovery of 1922-1923.² During February, March, and April of 1923, the turnover rate (adjusted for seasonal variation) was higher than at any time between the middle of 1920 and the end of 1927.³ Since the end of 1923, however, factory wages have been stable and labor turnover has been low.

V

But the fact that the new personnel policies have thus far produced only limited effects upon the labor situation in the United States should not lead us to underestimate their significance. In at least two respects they are likely to produce results of substantial importance.

In the first place, the new policies have materially strengthened the bargaining position of labor. The effect may not be sufficient to compel employers to increase wages more promptly in times of rising prices, but it is sufficient to retard or to prevent decreases in wages during times of slowly falling prices, such as the period 1923 to 1928. The new personnel policies have increased the bargaining power of labor because they have made the efficiency of labor depend more than ever before upon the willingness of men to do their best. As a result, enterprises find themselves compelled to retain labor's good will in order to avoid a loss in output. Consequently, when a fall in prices reduces the marginal worth of labor, it is not necessarily advantageous to reduce money wages — to do so might still further diminish the worth of labor by provoking a withholding of

2. National Industrial Conference Board, *Wages in the United States, 1914-1926*, p. 27.

3. *Handbook of Labor Statistics (1924-1926)*, p. 586.

efficiency. The most economical (or the least unprofitable) course may be to incur some expense in order to increase the efficiency of labor. There is abundant evidence that the reluctance of managers to reduce wages in the face of declining prices since 1923 has been partly due to the fear that wage cuts would destroy the good will which has been built up at considerable trouble and expense.⁴

In the second place, altho the new personnel policies are not responsible for the recent decrease in union membership, it is probable that they will at least retard the spread of unionism. Modern technology has tended to create class cleavage, by making the wage earner believe that he is destined always to remain a wage earner. Convinced that he has slight prospect of getting ahead as an individual, and that his welfare depends upon the welfare of his class, he becomes interested in organizing to improve the condition of his class. In the United States, with its rapidly expanding industries, the tendency of workmen to rely upon collective action rather than upon individual effort has been less pronounced than in Europe, but even here there has been a substantial growth of unionism, especially since 1897. Modern personnel methods are one of the most ambitious social experiments of the age, because they aim, among other things, to counteract the effect of modern technique upon the mind of the worker, to prevent him from becoming class conscious and from organizing trade unions. To the ablest, the most ambitious, and the most energetic workers, the very men

4. Between 1923 and 1926, non-agricultural wholesale prices decreased over 9 per cent and, between 1926 and 1927, over 5 per cent. Hourly earnings of factory workers, according to the National Industrial Conference Board, remained practically stationary between 1923 and 1926. The slight movement was upward. Between 1926 and 1927, the hourly earnings of factory workers increased from 56.2 cents to 56.9 cents. (Wages in the United States, 1914-1927, p. 29.)

who would resent most keenly the lack of an opportunity to rise and who would be most likely to become leaders of unions, modern personnel practice offers the chance of a career — promotion by merit through carefully graded steps and along carefully planned roads, and classes in which to prepare for more responsible positions. To the best men promotion thus becomes a more certain and often an easier way of gaining higher wages than is trade-union action. To the average and sub-average man, the wage earner who cannot expect to advance by unusual skill, knowledge, or exertion, and who is most likely to be interested in group action, modern personnel management offers security — steady work, protection against arbitrary discharge, a pension in old age, and, in some cases, insurance against sickness.⁵ In addition, it encourages him to form the habit of relying, not upon himself, but upon the employer, for help in the ordinary problems and even in some of the great crises of life. If the worker has a toothache, the company dentist will cure it; if he has a headache or a cold,⁶ he can get treatment from the company doctor; if he or a member of his household needs an operation, the company doctor will help him find a competent surgeon; in some cases, the company optometrist will measure him for glasses, and the company chiropodist will treat his corns. If he has legal difficulties, he can obtain free advice from the company's lawyer; if his wife or children are sick, a nurse from the company will visit his home to render such assistance as she can; if he wishes to save money, the company will act as agent for a bank, deduct the

5. The adequacy of the security is not here in question. Apparently it is sufficient in a period of stable prices to take the edge off the discontent of the wage earners, and that possibly is all that it is intended to do.

6. The Standard Oil Company of Louisiana even announces that it is prepared to administer cold vaccine to any employees who desire it.

money from his pay check, deposit it in the bank, and do the bookkeeping for him; if he needs to borrow money, the company will lend it to him at a low rate of interest; if he wishes to own his house, the company will build one for him and sell it to him on easy terms, or help him to borrow the money to build it himself.

The efforts of personnel management to check the growth of unionism suggest what is probably the most serious criticism of current labor policies. The criticism is essentially the same as that which John Stuart Mill made of paternalistic government. Mill said:

A people among whom there is no habit of spontaneous action for a collective interest — who look habitually to their government to command or prompt them in all matters of joint concern — who expect to have everything done for them, except what can be made an affair of mere habit and routine — have their faculties only half developed; their education is defective in one of its most important branches. . . . There cannot be a combination of circumstances more dangerous to human welfare, than that in which intelligence and talent are maintained at a high standard within a governing corporation, but starved and discouraged outside the pale. . . . The only security against political slavery is the check maintained over governors, by the diffusion of intelligence, activity, and public spirit among the governed. . . . It is therefore of supreme importance that all classes of the community, down to the lowest, should have much to do for themselves; that as great a demand should be made upon their intelligence and virtue as it is in any respect equal to; that the government should not only leave as far as possible to their own faculties the conduct of whatever concerns themselves alone, but should suffer them, or rather encourage them, to manage as many as possible of their joint concerns by voluntary coöperation.⁷

Substitute "employers" for "government," and the words of Mill become peculiarly applicable to industry today. Clearly, modern personnel management does not encourage wage earners "to manage as many as possible of their joint concerns by voluntary coöpera-

7. J. S. Mill, *Principles of Political Economy*, bk. V, chap. 11, section 6.

tion." Plainly, it does seek to prevent the development of any "habit of spontaneous action for a collective interest."

The case against paternalism is probably weaker today than when Mill wrote. Only through some kind of paternalism, apparently, can the wage earner be protected against many of the hazards of modern life, or can he obtain the benefits of many scientific discoveries or the services of many professional experts. It is clear that employers, at little or no extra cost, can often give help which the worker could obtain for himself only at considerable trouble and expense. But is there not need among wage earners for more initiative and enterprise, for more mental independence, and for more disposition to rely upon coöperative self-help than modern personnel practice is disposed to encourage? Is it not, in general, desirable that men be encouraged to manage their own affairs rather than that they be deliberately and skillfully discouraged from making the attempt? And if much paternalism is inevitable, would it not be more satisfactory, from the standpoint of the community, that it be paternalism of the government rather than paternalism of employers?

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IMPORTS OF AMERICAN GOLD AND SILVER INTO SPAIN, 1503-1660¹

SUMMARY

I. Effect of fertile American mines on European prices — Spain the recipient and distributor of the treasure, 437.—New sources of data, 438.—II. House of Trade and Merchant Gild of Seville, 441.—Handling of bullion in the Indies: (a) mining; (b) assaying; (c) shipping, 442.—III. Treasure fleets, 444.—Attempts to plunder, 445.—Measures taken to combat smuggling and exporting: (a) in America; (b) on fleets; (c) in Spanish waters, 448.—The silver master, 451.—The House of Trade the goal of all American treasure, 453.—How gold and silver were disposed of in Spain: (a) mints; (b) silver merchants, 454.—IV. Volume of imports, Table A, Chart I; explanation of trends, 462.—Gold and silver, Table B, 468.—Relative importance of exporting regions, Chart II, 469.—V. How imports affected motherland and colonies, 469.

I

FOR at least a century prior to the discovery of America, stationary production of the precious metals, in conjunction with rapidly expanding industry and commerce, caused a decline in prices which, through its effect on profits, seriously handicapped business enterprise.² The régime of falling prices was ended by the discovery of extremely fertile mines in America a few decades after the memorable voyage of Columbus. A reverse movement set in. The influx of precious metals into Europe precipitated one of the greatest price revolutions occurring on a specie basis in modern times, if not in all history.³

1. The data for this study were collected in 1926-27, while I held a Sheldon Travelling Fellowship from Harvard University.

2. Debasement of the coinage did cause sporadic increases in prices; but they were not dependable and reckonable, for inflation might be followed by deflation.

3. Earl J. Hamilton, "American Treasure and Andalusian Prices, 1503-1660: A Study in the Spanish Price Revolution," *Journal of Economic and Business History*, i, 31-33.

The present paper deals with imports of gold and silver, not with production in the Indies. The reasons for following this course are two. First, all the American treasure that entered Europe legally during the period under investigation passed through Spain. No other colonizing power found significant mines of gold or silver, and trade with the Spanish colonies was jealously restricted to subjects of the motherland.⁴ Second, imports — not production — affected the economic life of Europe.

The amount of treasure drawn by Spain from her American colonies has been a fruitful source of speculation among historians for almost four centuries,⁵ and economists have given some attention to the matter since the time of Bodin. And yet, notwithstanding the persistence and intensity of interest in the subject, the often-admitted guesses and rough approximations of contemporary chroniclers and travelers have been uncritically accepted by most writers. Scant use has been made of the records⁶ of the men who handled the treasure.⁷

4. Of course, there was some interloping. It increased toward the close of the period under investigation; but as late as the beginning of the eighteenth century the anonymous author of *Comercio de Holanda* said (p. 95) that almost all the gold and silver in Europe had been brought to Spain from New Spain and Peru. Manuel Colmeiro estimated that Spain received from 83 to 87 per cent of all the American treasure that reached Europe during the first three centuries after the discovery (*Historia de la Economía Política en España* [Madrid, 1863], ii, 434, 435). In the eighteenth century the Portuguese found rich gold deposits in Brazil (Adolf Soetbeer, *Edelmetall-Produktion* [Gotha, 1879], pp. 83-92).

5. R. B. Merriman, *Rise of the Spanish Empire* (New York, 1925), iii, 636, 637.

6. Now deposited in the *Archivo General de Indias*, — hereafter written A. de I., — the repository of official papers pertaining to the Hispanic colonies.

7. In his admirable study, "American Gold and Silver Production in the First Half of the Sixteenth Century" (*Quarterly Journal of Economics*, xxix, 433-479), Professor C. H. Haring used the records of the

Among the documents utilized in the present study the registers of caravels and galleons, catalogued as *Registros de Oro, Plata, y Mercaderías para Su Majestad y Particulares*, deserve mention. Unfortunately, none of these papers seems to have been preserved for the first quarter of the sixteenth century, and for most of the ensuing twenty-five years they are incomplete. The registers record numerous shipments, many of which are given by weight in annoyingly odd figures,⁸ so that a vast amount of labor is required to add the receipts for a single year.

House of Trade in determining the volume of production in the Indies. In this paper, and in his *Trade and Navigation between Spain and the Indies* (Cambridge, 1918), Professor Haring gives the crown treasure — as shown by the records of the treasurer of the House of Trade — drawn from America, 1503-59. Don Francisco de Laiglesia, in "Los Caudales de Indias en la Primera Mitad del Siglo XVI" (*Nuestro Tiempo*, March, 1904), used the same source in calculating the receipts of public treasure through the reign of Charles V. His work contains errors incompatible with the impeccability which he claimed, and which one would infer from his inclusion of half *maravedís*. Apparently Laiglesia considered that debits were made on the books of the treasurer only on account of American gold and silver. Consequently his figures contain such extraneous items as money borrowed from agents of the Fuggers on "exchange," sales of caravels in Spain, sums received for licenses to carry slaves to America, and sales of redundant supplies bought by the House of Trade. The papers of the India House pertaining to imports of public treasure during the last hundred years of the period under investigation, when the influx was greatest, have been little used. For the whole period the facilities of the Archivo General de Indias for determining private receipts, — which far outweighed public, — the share of imports contributed by each of the two great producing regions, and the relative importance of gold and silver have remained virtually untouched. It is surprising that the records of the House of Trade concerning gold and silver have not been fully utilized, for in 1629 Alonso de Carranza, in *El Ajustamiento i Proporción de las Monedas* (Madrid, p. 211), pointed out how the quantity of imports might be ascertained; and José de Veitia Linaje's *Norte de la Contratación de las Indias Occidentales*, published in 1672 (Seville), was drawn largely from the correspondence between the House of Trade and the Council of the Indies, the most usable and perhaps most reliable single source of information.

8. In a caravel that came from the Indies in 1544 there were 154 separate shipments, of which the first six — 561, 578, 398, 245, 151, and 188 pesos of gold — may be taken as typical. In 1548 the first six of 324 items in the register of a treasure ship were 297, 329, 101, 64, 107, and 303 marks of silver. (A. de I., *Indiferente General*, 147-2-12.)

The *Cuenta y Razón*, a sort of journal of receipts and disbursements, kept by the treasurer of the House of Trade (Casa de la Contratación), contains a fairly complete record of crown treasure (including shipping point, vessel, captain, weight, fineness, and value), and likewise methods of disposing of the gold and silver — such as sale by contract, auction, coinage in the Seville mint, shipment to another mint, or delivery to an agent of the crown in Seville or some other city. The entries of the journal are posted in *Cargo y Data*, a ledger, found in the same documents. These records proved a valuable source of information from February 14, 1503, when Isabella appointed Sancho de Matienzo treasurer,⁹ until the close of the reign of Charles V. Altho the accounts, which were intended to establish the responsibility of the treasurer for all sums passing into his stewardship, included extraneous items from the beginning, it was feasible to separate receipts of gold and silver until, on December 14, 1560, Philip II ordered the treasurer to receive the *almojarifazgo*, or customs duty, on goods shipped to and from the Indies — to which was added in 1582 the income from the *alcabala*, or sales tax, in Andalusia.¹ About the same time the books commenced to suffer from such defects as faulty summation, entry of receipts more than once, and apparently needless and disorderly transfers of items.²

9. A. de I., Contratación, 46-4-1/30. The first entry in the records of the treasurer was made on February 25, 1503 (A. de I., Contratación, 39-2-1/8). The accounts were well kept until October, 1521, when Sancho de Matienzo died. His work surpassed that of any treasurer or comptroller who followed him.

1. José de Veitia Linaje, op. cit., lib. i, pp. 74, 75.

2. At least in the early years, say before 1555, the books of the treasurer were audited by order of the crown every five or ten years. A summary of the receipts and disbursements was generally made and a balance struck in favor of or against the treasurer. For example, see A. de I., Contratación, 39-2-1/8, 39-2-2/9, 39-3-3/1. The summaries are generally not reliable, but they furnish a rough check on the accuracy of one's work with the journal and ledger.

The summaries of receipts of gold and silver, prepared annually by the comptroller of the House of Trade from the registers of treasure ships arriving from the Indies, proved extremely valuable for the period after 1550.³ Both public and private treasure are listed, together with the name of the vessel, port of shipment, and the like.

Letters from the House of Trade, reporting the annual receipts of gold and silver to the Councils of the Indies and of the Treasury, constitute the most important single source. These reports seem to have been based on the above summaries, but the former have been a great deal better preserved than the latter. Unfortunately, the first letters available are for 1558; the earlier ones were probably destroyed by a fire in 1563, which consumed many documents of the House of Trade.⁴ Reports were doubtless submitted with more or less regularity from the beginning of the sixteenth century, for on June 15, 1510, a pragmatic was sent to the House of Trade reiterating previous orders that detailed reports on public and private gold coming from the Indies be supplied the crown.⁵

A "report on reports," covering the period 1583-1613, filed with the papers of the comptroller (*contador*), proved serviceable in determining the completeness of data and in locating documents. As a rule, no single source listed above has been relied upon without being checked against others.

3. The first summary I was able to locate is for 1550 (A. de I., *Indiferente General*, 147-2-12).

4. José de Veitia Linaje, *op. cit.*, p. vi.

5. *Colección de Documentos Inéditos Relativos al Descubrimiento, Conquista, y Organización de las Antiguas Posesiones Españolas de América y Oceanía* (Madrid, 1869), xxxi, 551-554.

II

An account of Spanish imports of American treasure would hardly be complete without some consideration of the machinery for transporting and handling bullion in Spain and the Indies.

First, let attention be directed to the House of Trade at Seville,⁶ a government bureau instituted for the regulation and development of trade and travel between Spain and the colonies of the New World.⁷ The affairs of the House of Trade, itself under the supervision of the Council of the Indies,⁸ were controlled by three judge-officials (*jueces oficiales*) — the factor, treasurer, and comptroller — who were in effect chiefs of divisions as well as councilors who helped to formulate policies, and a president,⁹ whose principal duties were to co-ordinate the work of the judge-officials and to represent the India House in external matters.

The Merchant Guild of Seville, established by the Emperor in 1543, was intimately connected with the

6. The compass of the present paper permits only the barest outline of the organization and functions of the India House. For a comprehensive treatment, see C. H. Haring, *Trade and Navigation between Spain and the Indies*, or Gervasio de Artinaño, *Historia del Comercio con las Indias* (Barcelona, 1917).

7. The activities of the House of Trade consisted of the enforcement of decrees affecting the India trade; the assembling, outfitting, provisioning, inspecting, and dispatching of treasure fleets; the control of travel to and from America; the maintenance of postal service with the Indies; the promotion of the science and art of navigation; and the development of pure and applied geography.

8. Merriman, *op. cit.*, iii, 619.

9. After 1579. According to Haring (*Trade and Navigation*, p. 46), Philip II created the office of president in October, 1557, but it was permitted to lapse for two decades on the death of the first incumbent, who served little more than a year. Gervasio de Artinaño (*op. cit.*, p. 59) says that Charles V named the first president and adduces instructions given the first appointee by the Emperor.

House in the governance of the India trade.¹ Furthermore, it was often called upon for voluntary or compulsory advances to the crown, sometimes to finance the convoys of treasure fleets and at other times to meet urgent needs of the government. In fact, the House of Trade and Sevillan Merchant Gild stood in about the same relationship to the crown as did Thomas Gresham and the Merchant Adventurers to the English government during the reign of Elizabeth.²

Only in the case of Huancavélica, the famous mercury mine in Peru, did the crown engage in mining. As soon as it had been definitely determined that precious metals could be extracted in the Antilles, royal decrees permitting private individuals to stake claims were promulgated.³ Upon filing claims, prospectors were bound by oath to bring all bullion to the royal assay offices, where it was assayed,⁴ cast in bars or plate,⁵ marked, and

1. The Merchant Gild relieved the House of Trade of hearing suits between members of the Gild arising from the India trade. The prior and consuls of the Gild met with the officials of the House, to draw up budgets for the conveying of treasure fleets (A. de I., Contratación, 30-3-3/9). The Gild constantly furnished expert counsel concerning financial and commercial matters. For example, see A. de I., Contratación, 42-6-12/16.

2. To be exact, between the years 1551 or 1552 (before the accession of Elizabeth) and 1574.

3. *Recopilación de Leyes de Indias* (Madrid, 1681), — hereafter written *Recopilación*, — lib. iv, tit. xix, leyes i-xvi. The decrees stated specifically that the rights of Indians to exploit mines were in no way inferior to those of Spaniards and expressly forbade Spaniards to infringe upon the rights of natives.

4. An ordinance of 1537 required crown officials personally to supervise the smelting and assaying of bullion (*Recopilación*, lib. iv, tit. xxii, ley xi). The offices were ordered to be open for business three hours on every Monday and Thursday morning (*Ibid.*, ley xii). Legislative measures were taken to insure honesty in the analyses. On November 4, 1535, the mixing of base metals with gold, with fraudulent intent, was made punishable by death and the confiscation of the offender's goods (*Ibid.*, ley iv). On July 1, 1646, these penalties were extended to silver (*Ibid.*, ley v). The decree of July 1, 1646, also directed assayers to halve all pieces of bullion presented for analysis; in case any foreign substance was found, the gold or silver was confiscated and its possessor fined four times its value (*Ibid.*, ley xv). Yet fraudulent and perfunctory assays were not unknown.

5. Each piece was numbered and stamped with its weight, fineness,

quinted.⁶ Mercury, which became of the utmost importance after the discovery of the amalgamation process for silver,⁷ was a crown monopoly, for which the royal assay officers served as distributing agencies.

Altho the law required all bullion to be carried directly to the royal assay offices and expressly forbade Spaniards and Indians to buy, sell, lend, or pawn treasure that had not been assayed and quinted,⁸ not all bullion paid the royal quint. The wild and unsettled character of the country, especially in Peru, facilitated evasion of the law. Only well-to-do miners carried their own metals to the assay offices; others generally delivered them at the mine to capitalists, who, through advances of subsistence and equipment for mining, financed their operations. Furthermore, gold and silver dealers made the rounds of the mines, buying unquinted treasure and sending it to the assay offices.⁹ These middlemen doubtless furnished a genuine economic service. They could establish regular routes and thereby provide transportation more economically than small producers, each of whom, in order to transport his own metal, would have required facilities used only at infrequent intervals. Moreover, the specialists could protect treasure at much less cost, for this item did not vary proportionately with the treasure.

and date of assay (Antonio de Ulloa, *Noticias Americanas* [Madrid, 1792], p. 215). Colonial officials were instructed not to send crown silver in small pieces (José de Veitia Linaje, *op. cit.*, lib. i, p. 274). But neither were they to be too large. In December, 1635, Philip IV ordered the institution of criminal procedure against the smelter (*fundidor*) making a bar of silver weighing more than 120 marks (Recopilación, lib. iv, tit. xxii, ley ix).

6. The quint was a severance tax on mining. It was usually, tho not always, — as its name suggests, — a fifth; under special circumstances, such as infertile or badly situated mines, it was as low as a tenth. In 1552, the fees for assaying, smelting, and marking were fixed at 1½ per cent (Recopilación, lib. iv, tit. xxii, ley xiii).

7. About the middle of the sixteenth century.

8. Recopilación, lib. iv, tit. xxiv, ley i.

9. Antonio de Ulloa, *op. cit.*, pp. 215, 216.

To transport bullion from the mines to the royal assay offices in Peru, the llama, the only animal able to work in the Andean altitudes or to follow trails through the mountain wilderness that had to be traversed, was used as a pack animal. Certain tribes of Indians gained their livelihood by making bags and cords, with which treasure was secured to the backs of the llamas.¹

Treasure bearing the official seal of the assay office could be shipped to other parts of the Indies² or to Castile, provided it was listed in the name of its owner³ in the register of mines, kept by the chief notary of mines (*escribano mayor de minas*), and in the books of a royal official at the port of shipment.⁴ Unquinted bullion was contraband throughout the Indies, and its coinage in colonial mints was punishable by death and the loss of the offender's goods;⁵ if found on board a vessel, it was confiscated and the man in charge fined four times its value.⁶

III

From the following American ports gold and silver were sent to Spain: Vera Cruz (sometimes called San Juan de Ulúa) in New Spain,⁷ Cartagena in New Granada (Colombia), Amatique and Truxillo in Honduras, and Nombre de Dios and Porto Bello in Panama,⁸ where

1. Antonio de Ulloa, *op. cit.*, p. 217.

2. The privilege of intercolonial shipment was restricted after trade between New Spain and the Far East had commenced to drain away, through the port of Acapulco, Peruvian treasure that had been carried thither. See *Recopilación*, lib. ix, tit. xlv.

3. *Ibid.*, tit. xlv, ley x.

4. *Ibid.*, lib. iv, tit. xxii, ley i.

5. *Ibid.*, tit. xxiii, ley vi.

6. *Ibid.*, lib. ix, tit. xxxiii, ley lxiv.

7. Except as used on p. 469 below, where a special definition is given, "New Spain" means all of Spanish North America west of the Mississippi River and north of Honduras.

8. Nombre de Dios was the principal port of Panama until about 1594, when it was supplanted by Porto Bello.

Peruvian treasure, shipped originally from Callao, was placed on the *Tierra Firme*⁹ galleons.

Specie was carried from Peru to Panama, for transshipment to the motherland, on the Pacific (*Mar del Sur*) fleet, which was modeled after the treasure fleets plying between Spain and the Indies. The registers of ships were kept in the same manner, and the fleet was served by the same classes of officers. These officers were appointed by the viceroy of Peru, who was also responsible for taking all precautions, such as the provision of adequate artillery and ammunition, making for the safety of public and private treasure.¹ Upon the arrival of the fleet at the Isthmus, it was thoroly inspected by treasury officials accompanied by an *oidor* named by the president of the Audiencia of Panama.² The governor of Panama was instructed to supervise the transportation of treasure from the Pacific to the Atlantic port; upon him devolved the selection of guides to lead the caravan over the roads and trails and on the Chagres River. Gold and silver were not moved to Porto Bello until news of the arrival of the treasure fleet had been received, for it was feared that large amounts of specie on the Atlantic might invite attack, and that private treasure intended for shipment to Spain might be diverted to other uses, or make its way to a foreign country.³

For a time single vessels, relying upon their own arms for protection, carried private goods and government supplies to the Indies, and took on return cargoes of gold and other products, such as Brazil wood; but early in the twenties of the sixteenth century, pirates, especi-

9. "*Tierra Firme*" means the mainland of South America. Cf. p. 469 below.

1. *Recopilación*, lib. ix, tit. xli, ley viii; tit. xlv, ley xv; tit. xlv, ley v.

2. *Ibid.*, ley xiv.

3. *Ibid.*, tit. xxxiii, ley ix; tit. xxxiv, ley xxix.

ally French and Moorish, menaced the ships to such an extent that war vessels, fitted out from the proceeds of the *avería* — a special convoy tax levied on goods carried to and from the Indies — were used to police the waters around Andalusia, as well as certain parts of the Indies, where the caravels were peculiarly susceptible to attack. Later, strict regulation of the armaments of vessels engaged in the India trade was instituted, and each ship was expected to defend itself in case of attack. About the middle of the sixteenth century, however, the bold aggression of pirates, and the danger of capture by enemy ships during the perpetual wars of the house of Austria, again caused a change in the methods of protecting treasure ships. Merchant vessels began to sail in fleets convoyed by war ships, the expenses of which were borne by the *avería*. Sporadic sailings of fleets, adequately protected by men-of-war, were maintained until about 1565, when the service was regularized.⁴

At first, single armadas, one sailing in January and the other in April, served all parts of the Indies. The fleet divided in the Antilles, the captain general going to Tierra Firme with part of the vessels, and the admiral to New Spain with the others. But this plan was of short duration. A pragmatic issued on October 18, 1564, ordered the fleets to sail separately, the New Spain fleet departing in April and that of Tierra Firme in August.⁵ As might be expected, however, the inveterate propensity of the Spaniard to procrastinate defeated the laws regulating the dates of sailing. But there was a limit to the possible delay: the New Spain fleet had

4. Miguel Alvarez Osorio, *Extensión Política y Económica* (1687-88), reprinted in *Educación Popular* (Madrid, 1775), p. 435; José de Veitia Linaje, *op. cit.*, lib. ii, pp. 60-85; *Recopilación*, lib. ix, tit. xxxiv, ley i.

5. José de Veitia Linaje, *op. cit.*, lib. ii, p. 82.

to sail before August in order to avoid the hurricanes that sweep the Gulf of Mexico in September.⁶

In view of the popular misconception concerning the amounts of treasure taken by the English, French, and Dutch, one who works with the records is impressed by the paucity rather than the plethora of the specie that fell prey to foreign powers.⁷ What Adam Smith said about the failure of gold to cover its cost of production is strikingly applicable to the efforts of foreigners to plunder Spanish treasure fleets. The records of the House of Trade abound with accounts of abortive attempts of pirates and foreign powers to capture these vessels; yet few fell into their hands. In only two years were significant portions of a treasure fleet seized by enemies; in 1628 the Dutch took the fleet returning from New Spain, and in 1656 the English prevented most of the specie on the *Tierra Firme* fleet from reaching the motherland. For the most part, the *flotas*, teeming with men and bristling with arms, sailed at regular intervals over usual courses, almost, if not absolutely, without regard to the operations of enemies.⁸

Every effort was made to check the receipts of public and private treasure with the amounts shipped from the Indies. The royal assay offices were required to submit to the crown annual reports on the sums collected from the quint and fees for smelting, assaying, and marking.⁹ Colonial officials also reported to the House

6. Anonymous, *Comercio de Holanda* (translated from French into Spanish by Francisco Xavier de Goyeneche in 1717), pp. 100, 101.

7. See especially A. de I., *Contratación*, 42-6-1/5 to 42-6-13/17.

8. This statement needs qualification as regards the closing years of the reign of Philip IV, when the administration became exceedingly lax. Along with other things, the fighting equipment of the galleons deteriorated. In 1656, 1657, and 1658, English men-of-war bottled up the fleets in Spain and delayed or prevented their sailing (A. de I., *Contratación*, 42-6-12/16, 42-6-13/17). It is worthy of note that the disasters of 1628 and 1656 occurred during the reign of the weak Philip IV.

9. *Recopilación*, lib. iv, tit. xxii, ley xi.

of Trade the number, weight, and fineness¹ of each piece of gold and silver sent to the crown, as well as the number of people and the amount of gold, silver, and merchandise on every ship returning to Spain. The registers of vessels, showing the quantities of public and private treasure carried, were deposited in the House of Trade. To guard against the loss of registers, every vessel leaving an American port was required to carry its own and a copy of that of another ship sailing at the same time.² The House of Trade was required to report to the proper colonial officials the amount of crown treasure received, in order that any discrepancy between it and the quantity dispatched might be ascertained.³

From the beginning, smuggling was punished by confiscation, and in 1593 this penalty was supplemented by four years' suspension from office in the case of a captain or minister, and four years' sentence in the galleys for a man of lower rank. In 1634 the severity of the measures was still further enhanced: men of high station in life became subject to perpetual exile from the Indies and the withdrawal of the privilege of engaging in the India trade, while men of lower status might be sentenced to ten years in the galleys.¹

1. The fineness was expressed by stating in *maravedís* the value of a mark of silver or peso of gold (A. de I., Contratación, 41-2-5 to 41-2-9).

2. Recopilación, lib. ix, tit. xxxiii, ley xliii.

3. Ibid., tit. 1, ley lvii.

4. José de Veitia Linaje, op. cit., lib. ii, p. 196. In theory, gold and silver brought to Spain by soldiers and sailors, including their salaries, were not exempt from registration in the usual manner. In practice, however, since it was virtually impossible to prevent it, the soldiers and sailors were always permitted to bring small amounts of unregistered gold and silver without penalty. But the abuse of this privilege caused it to be circumscribed. An ordinance of May 20, 1646, fixed the amounts which they might bring unregistered at a sum not in excess of their salaries. Passengers were permitted to bring in like manner enough money to defray traveling expenses for themselves and families, provided the funds brought in this way did not exceed the sums they registered (Recopilación, lib. ix, tit. xxxiii, ley lxi).

Royal officials in the Indies and on the treasure fleets were instructed to take special precaution against smuggling.⁵ To encourage the detection of smuggled treasure, the denouncer was promised one third of all small sums, and a sufficient reward, to be fixed by the trial judge, in the case of large sums.⁶ The captains general were directed to make every possible effort to ferret out men who embarked as soldiers, sailors, or passengers for the purpose of carrying treasure out of register.

Officers and seamen were instructed to take special precautions against the removal of gold and silver during the course of the voyage, and fruitful methods of perpetrating this act were called to their attention. For instance, they were cautioned against permitting other vessels to tie on to the treasure ships while at sea and against permitting a boat to go to the rescue of a vessel in distress without carrying some man worthy of trust appointed by the captain general.⁷

Efforts to stifle smuggling were redoubled when the fleets approached land. Boats were forbidden to land from the vessels comprising the flota or from galleys that went out to escort it into port. Each sailor in a boat violating this ordinance, even with permission of the captain general, was subject to a penalty of two hundred lashes and ten years as a galley slave.⁸ Fishing boats were forbidden to sail out to meet incoming fleets, or to take on board any man who left a treasure

5. Recopilación, lib. viii, tit. xvii, ley i.

6. Ibid. Between 1635 and 1640 the rewards varied from $\frac{1}{2}$ to $\frac{1}{3}$ of the treasure denounced. There seems to have been little correlation between the amount of specie and the reward. For instance, in 1637 the man who detected 2,614,481 *maravedís* was paid a third, while in 1636 the denouncer of 133,100 *maravedís* was given only a sixth (A. de L., Contratación, 41-1-2/13).

7. Recopilación, lib. ix, tit. xxxvi, ley xviii.

8. Ibid., ley xlv.

ship.⁹ By an ordinance of September 14, 1614, the dispatch of messenger boats (*barcos de aviso*) to ports other than San Lucar de Barrameda and the firing of salutes were interdicted, since these practices merely served to apprise fishing boats and pirates of the approach of the fleets.¹

Upon the arrival of a fleet at San Lucar de Barrameda, the captain general was required to notify the Council of the Indies and the House of Trade, and he was forbidden to permit anyone — passenger, soldier, or sailor — to leave a ship before the fleet had been inspected by an official of the House.² The officials were ordered not to allow more than one day to elapse between the receipt of notification and the inspection³ and to do the work in person, not by proxy.⁴ It was intended that this inspection should be thoro, as is attested by the fact that the law ordered the official to require every passenger and seaman to declare under oath whether he had any knowledge of anyone's carrying unregistered or unquinted gold, silver, or pearls; taking anything from a vessel during the voyage or after arrival; or registering in his name treasure belonging to another. Then the inspector had to open all chests to ascertain whether they contained contraband or unregistered goods.⁵

9. Ibid., leyes xlv-xlv. It was alleged that fishing boats had made it a practice to meet treasure fleets for the ostensible purpose of showering hospitality upon them, but for the real purpose of serving as receptacles for smuggled specie.

1. Recopilación, lib. ix, tit. xxxvi, ley xlviii.

2. Ibid., ley lvii.

3. Ibid., tit. xxxv, ley lxv. These inspections were made by one of the judge-officials of the House accompanied by a sheriff, prosecuting attorney, and guards.

4. Ibid., ley lxiv. Upon the arrival of the inspecting officer, all foreign vessels were required to withdraw from the general vicinity of the treasure fleet (Ibid., tit. xxxvi, ley lv).

5. Ibid., tit. xxxvi, ley lv.

The laws against smuggling were not always strictly enforced. In some years — such as 1560, 1593, 1595, and 1597 — when it was suspected that significant amounts of unregistered gold and silver had arrived, pardons were granted to all who confessed and paid the *avería*.⁶ On September 14, 1594, the reason for this procedure was set forth in a letter from the House of Trade to the Council of the Indies. The Council was requested to permit the delivery of unregistered specie, less the *avería*, to all owners who confessed before a specified date. Enforcement of the laws against smuggling and the rigorous prohibition against the purchase of smuggled gold and silver by silver merchants and silversmiths, it was argued, had occasioned heavy losses in the *avería*, and, what was worse, the export of large amounts of treasure.⁷ Realizing that the granting of amnesty encouraged smuggling, Philip III declared on October 10, 1618, that in the future no pardons would be forthcoming.⁸ Nevertheless, they were resorted to more than ever in the closing years of the reign of his successor, Philip IV, when receipts of treasure fell off and the proportion of the actual receipts registered declined, thus causing the *avería* to weigh heavily upon the crown and honest private shippers.⁹

In the beginning, treasure came to Spain in charge of the captains of vessels, and later, in charge of the captains general of armadas. With the increase in the volume of shipments, it became necessary to have a special officer, the silver master (*maestre de plata*), to perform this function.¹ The silver master was originally

6. In 1595 one fourth of the smuggled treasure was confiscated (A. de I., Contratación, 42-6-3/7).

7. Ibid., 42-6-3/7.

8. José de Veitia Linaje, op. cit., lib. ii, pp. 199-201.

9. A. de I., Contratación, 42-6-12/16.

1. Ibid., 36-2-1/9.

named by the captain general of the armada; but on October 10, 1592, because of past abuses and the opportunities for fraud inherent in the position, the power of appointment was vested in the officials of the House of Trade, with the advice and consent of the prior and consuls of the Merchant Gild.²

Silver masters were required to give bond, satisfactory to the officials of the House of Trade, for 25,000 ducats in silver.³ Colonial officials were instructed to examine the silver master's bond before delivering treasure to him, and private individuals were expected to take the same precaution.⁴

A letter written to the Council of the Indies by the House of Trade on January 11, 1605, furnishes valuable information concerning the duties and remuneration of the silver master, and the type of man selected for the position. Usually captains of infantry or ex-admirals were appointed; always the appointee came from the upper strata of society. For instance, Tomás de Cardona, for years a commanding figure in the India trade, served at times as a silver master.⁵ The remuneration consisted of a fee amounting to one per cent of all registered treasure. In appearance the office was a lucrative sinecure. Lucrative it was, but no sinecure. The fees collected by the silver master on the flagship (*capitana*) of the Tierra Firme armada sometimes amounted to almost seven million *maravedís*. But from this gross income the silver master had to meet the following expenses involved in handling treasure: paying a notary and two helpers of irreproachable probity;

2. José de Veitia Linaje, op. cit., lib. ii, pp. 134, 135; Recopilación, lib. ix, tit. xxiv, ley i.

3. Recopilación, lib. ix, tit. xxiv, ley iii.

4. José de Veitia Linaje, op. cit., lib. ii, pp. 134, 135.

5. Alonso de Carranza, op. cit., pp. i-xvi. Tomás de Cardona furnished a factual basis for this monumental treatise, from which a wealth of first-hand information concerning the India trade can be gathered.

providing bags and boxes for packing; loading in the Indies, as well as unloading and reloading when occasion arose; transferring, when necessary, to other vessels in San Lucar de Barrameda; unloading at Seville; and transporting to the House of Trade. Furthermore, the silver master ran the risk of theft during the voyage.⁶

Notwithstanding the care exercised in their selection, silver masters did not always measure up to the standard of honor requisite for the position. In 1614 Estevan de Arce, silver master of the *almiranta* of the Tierra Firme armada in charge of General Lope Díaz de Al-mendáriz, absconded with a large amount of treasure on the day announced for the beginning of delivery to private owners. All the loss fell upon private individuals, presumably because the treasure of the crown had been delivered prior to the theft.⁷ An ordinance of 1593 — repeated in 1631, 1634, and 1640 — charged the silver masters with complicity in, or responsibility for, the major part of smuggling, and provided for either offense a penalty of loss of office and four years of exile.⁸

No matter what unusual circumstances arose, the House of Trade at Seville was the goal of all Indian treasure.⁹ When vessels in distress or in danger of attack were forced to put in at other ports, such as Málaga or Lisbon, the treasure was immediately carried to the

6. A. de I., Contratación, 42-6-4/8.

7. José de Veitia Linaje, op. cit., lib. ii, pp. 135, 136.

8. Recopilación, lib. ix, tit. xxxiii, ley lvii.

9. The pragmatic of 1529 authorizing sailings to the Indies from divers ports provided a death penalty and the loss of all of his goods for the captain of a ship failing to return to Seville (Manuel Colmeiro, op. cit., ii, 402; José de Veitia Linaje, op. cit., lib. ii, p. 136). That control of the shipment of treasure was the aim of this regulation is shown by the fact that vessels returning from Hispaniola or Porto Rico with cargoes of hides, dyes, and other colonial products were permitted to land and unload at Cadiz, provided any gold, silver, money, or precious stones carried were sent unpacked to Seville and delivered to the officials of the House of Trade (Recopilación, lib. ix, tit. xlii, ley xxvii).

House of Trade. No exception occurred until 1659, when the Tierra Firme fleet, fearing contact with British men-of-war, veered to the north and put in at Santander. Apparently the treasure was not shipped to Seville, but was disposed of by an agent of the Council of the Indies.¹ Passengers, civil or ecclesiastical, were required to carry their treasure to Seville. When the treasure fleets were forced to stop at any port *en route*, passengers were forbidden, under penalty of confiscation of all treasure brought from the Indies, to sell or barter gold, silver, or precious stones, except in case of dire necessity attested by the affidavit of a second party, and then only to the extent of a hundred ducats.²

When the treasure arrived at Seville, it was immediately taken to the House of Trade, where it was weighed by an official weigher (*balanzario*)³ and placed in chests in the treasure chamber, and, occasionally, in the chambers of the Audiencia and Merchant Guild. In normal times the substantial walls, strong doors, and double iron bars over the windows afforded ample protection, but on certain occasions special guards were kept on duty at night.⁴ The treasure chamber and chests were provided with triple locks, so that three keys, one of which was carried by each of the three officials of the House, were required to open them.⁵

When gold and silver entered the House of Trade, the duties of the silver master did not end. After permission had been received by the House from the Council of

1. A. de I., Contratación, 42-6-13/17.

2. Recopilación, lib. ix, tit. xxxiii, ley xxxvi.

3. José de Veitia Linaje, *op. cit.*, lib. i, p. 268.

4. A. de I., Patronato, 3-3-15. Treasure that came in the New Spain fleet of 1582 was guarded at night. Twelve watchmen were on duty at a time, and three shifts were used. The men were paid three reals each.

5. A green treasure chest, probably the *arca verde* frequently mentioned in the sixteenth- and seventeenth-century records of the House of Trade, is on display in the Archivo General de Indias at Seville.

the Indies, he had to deliver treasure to private owners, who might be required to prove that the laws governing registration had been obeyed.⁶ Barring orders for delay in delivery, or sequestration, this task had to be completed within four months after the arrival of the fleet, and under all circumstances before the silver master could embark on another voyage.⁷

In the early years the officials of the House of Trade undertook to supervise the refinement and coinage, for the most part in the Seville mint, of gold received by the crown.⁸ With this end in view, special equipment for smelting and refining was bought.⁹ But not all crown bullion was coined in the first instance.¹ All told, significant quantities of bullion were delivered to the creditors of the crown, especially the Fuggers, Shetz, Welsers, Esquetes, Centurións, and Dorias.² As was indicated in connection with the sources of this study, the records of the House of Trade do not reveal the disposition made of private treasure in the early years.

The fact that Castilian mints worked only bullion of the fineness requisite for coinage,³ which necessitated the refinement of treasure by its possessor, together

6. Alonso de Carranza, op. cit., p. 377.

7. José de Veitia Linaje, op. cit., lib. ii, p. 136; Recopilación, lib. ix, tit. xxiv, ley xii.

8. A. de I., Contratación, 41-2-5. Not all bullion was coined at Seville. For instance, early in 1524 gold was sent to be coined in the mint at Burgos (Archivo General de Simancas, Contaduría Mayor, Primera Época, 400).

9. A. de I., Contratación, 39-2-1/8. Workmen were paid on a piece-rate basis.

1. In 1552 twenty-one million *maravedís* worth of bullion brought from Peru was turned over to creditors of Charles V because the officials of the House of Trade thought that the price offered exceeded its mint value (A. de I., Indiferente General, 147-2-12).

2. A. de I., Contratación, 39-3-3/1, 41-1-1/12, 41-1-3/4, 42-6-1/5, 42-6-5/9, 42-6-7/11; Indiferente General, 147-2-12.

3. Juan Surrá y Rull, "Breve Reseña Histórica de la Organización y Régimen de las Casas de Moneda de España" in Autores Españoles (Madrid, 1869), pp. 1023-1024.

with swelling imports, soon led to the emergence of special machinery, in the form of silver merchants (*compradores de oro y plata*, literally "gold and silver buyers"), for handling Indian treasure. Since the government was desirous of profiting by the services of a specialized middleman and of avoiding fraud and collusion, sale at public auction to silver merchants became the normal method of disposing of crown treasure. As early as 1531, spirited bidding, such as would make for a "fair" price, took place. On August 14 of that year a shipment of bullion sold in the treasure chamber of the House of Trade, where subsequent auctions took place, brought forth twenty-four bids by seven silver merchants.⁴ This is a typical case for that period. Though at times the House of Trade was paid for crown treasure in cash, the usual method was for the stipulated sum to be paid by the mint, usually that of Seville,⁵ to which

4. A. de I., *Contratación*, 41-2-5.

5. The Seville mint was not the only one used. In the late thirties of the sixteenth century the Emperor became so exasperated by what he considered inexcusable delay in coining about 290,000 ducats' worth of bullion sequestered from private treasure brought from *Tierra Firme* (originally from Peru), that he improvised a mint in Barcelona and sent most of the treasure thither (*Archivo General de Simancas, Diversos de Castilla*, 1-27; A. de I., *Contratación*, 39-3-3/1). The famous water-driven mint of Segovia, the pride of Spanish governors and financial administrators, coined a substantial part of crown treasure, especially between 1585 and 1590. The following table, showing the amounts of crown bullion the House was ordered to send to the Segovian mint, may prove instructive (A. de I., *Contratación*, 41-2-6).

Date	Marks of Silver	Date	Marks of Silver
Nov. 2, 1585	80,000	Dec. 17, 1588	100,000
Dec. 8, 1586	35,000	May 3, 1589	50,000
Dec. 4, 1587	100,000	Feb. 29, 1590	100,000

This mint was still used in 1606, for on December 14 of that year the House was ordered to send 200,000 ducats' worth of gold and silver to Segovia "to be coined in reals and escudos" (A. de I., *Contratación*, 32-5-34). On Nov. 27, 1620, 400,000 ducats' worth of silver bullion was sent to Madrid, presumably for coinage there (A. de I., *Contratación*, 39-4-16/7). In July, 1639, fifty bars of silver were shipped to the mint at Toledo (A. de I., *Contratación*, 32-5-34).

the silver merchant contracted to deliver the bullion.⁶

Schemes for saving the crown the profits of silver merchants were not wanting, and occasionally they won favor. In 1563 the Council of the Indies ordered the House of Trade to refine and coin, without the aid of silver merchants, the bullion brought from Tierra Firme in the armada of Pedro Menéndez de Áviles. The House replied, in a letter of June 20, 1563, that it would be far more profitable and expeditious to sell the treasure at auction to the highest bidder among fifteen or sixteen able and experienced silver merchants than to attempt to refine and coin it. The silver merchants, it was argued, were qualified to perform the service, and their wives, children, and servants would help them do all the work; while the officials of the India House were not competent to handle bullion, and everyone who touched it would have to be paid a salary. On September 15, 1563, the House rendered the further objection that a host of

6. The following translation of an entry in the accounts of Receipts and Sales (*Recibo y Venta*) illustrates the methods employed by the House of Trade in disposing of crown treasure. "On May 10, 1591, we received from Marcos Rodríguez, captain of the caravel named [break in manuscript], the gold herein described, which was brought — registered on folio 98 of the register — for his Majesty. We offered the said gold for sale at public auction in the treasure chamber in the presence of many merchants of gold and silver, and sold it to Luís Hernández, the highest bidder, at 25½ *maravedis* per carat plus one ducat distributed over the amount offered for sale. The value of the gold is to be delivered to the treasurer of the mint of this city, in gold of the fineness for coining escudos, within six days. We protect ourselves and collect by the aforementioned duty of the treasurer to deliver [money], and we hand over the gold weighed by Luís de Castro, assayer of the House of Trade, in the following manner" (A. de I., Contratación, 41-2-6). This statement was followed by a description of the gold, setting forth the weight and fineness of each piece. Sales of silver differed from the above only in the requirement that silver of the fineness for coining reals be delivered at the mint. In a few cases the silver merchant was required to "deliver the value of the silver in reals in the treasure chamber of the House" (A. de I., Contratación, 41-2-6). In 1581 this practice was fairly common, especially in minor transactions. Contracts calling for payment in another city were not unknown (José de Veitia Linaje, op. cit., lib. i, p. 254).

guards would be necessary to prevent embezzlement by the workmen who refined the treasure, and that the expense entailed would more than absorb any possible profit.⁷ The remonstrance of the House of Trade was successful, for the treasure was sold to silver merchants. In 1609 the Council of the Indies again must have entertained notions of "eliminating the middleman," for in that year the House wrote the Council that it would be far more profitable to sell treasure at auction than to attempt to coin it without the aid of silver merchants.⁸ In 1621 crown bullion was actually handled by the House of Trade, the factor being in charge of the work. As the House had anticipated, the experiment proved disastrous. Veitia Linaje tells us that up to his day (1672) the government did not again venture upon such a course.⁹

Altho the law did not require it, Carranza, long a student and close observer of the India trade, tells us that almost all private treasure was sold to silver merchants;¹ and we know that in 1620 they bought all the private bullion that was not sequestered.² The explanation of this phenomenon probably lies in the fact that silver merchants developed considerable skill in supervising the refining of bullion. In fact, Veitia Linaje was especially impressed by the circumstance that they relieved private owners of this burden.³

Before silver masters could deliver private treasure to its original owners, or to silver merchants who had bought it, it was necessary for them to obligate the recipient to coin the bullion in one of the mints of Cas-

7. A. de I., *Contratación*, 42-6-1/5.

8. *Ibid.*

9. *Op. cit.*, lib. i, p. 91.

1. *Op. cit.*, p. 189.

2. A. de I., *Contratación*, 39-4-16/7.

3. *Op. cit.*, i, 254.

tile.⁴ On December 4, 1620, the Council of the Treasury (*Consejo de Hacienda*) ordered the House of Trade to withhold one eighth of the private treasure received that year⁵ as punishment for surreptitious exportation of bullion in the past, and to require the private owners, or purchasing silver merchants, to present to the House, within six months of the date of delivery, a certificate from the mint of their choice to the effect that the bullion had been delivered for coinage.⁶ In 1659 the House of Trade and Sevillian Merchant Gild agreed that one of the three functions of registration was to provide a means of enforcing coinage within the realm.⁷

As one would expect from the fact that the Seville mint was literally in the shadow of the House of Trade, a significant portion of private treasure was coined there. In the period 1585-95, 55 per cent, and in 1620, 52 per cent, of private bullion was carried to the local mint.⁸

In the beginning, not companies, but individuals were silver merchants. For the most part, individuals formed banks in their homes and casually engaged in buying treasure, the magnitude of their operations depending on the extent of the funds entrusted to them.⁹ But an

4. Recopilación, lib. ix, tit. xxiv, ley xiii.

5. On October 24, 1620, the House received orders not to deliver private treasure pending further notice (A. de I., Contratación, 39-4-16/7).

6. A. de I., Contratación, 39-4-16/7. A report of the president of the House of Trade on September 2, 1622, showed that 1,277,371,800 *maravedís* worth of private bullion was delivered to the following mints before June 16, 1621 (A. de I., Contratación, 39-4-16/7).

Seville.....	663,735,465 <i>maravedís</i> , or 52 per cent
Segovia	163,881,445 <i>maravedís</i> , or 13 per cent
Toledo	322,613,590 <i>maravedís</i> , or 25 per cent
Madrid	127,141,300 <i>maravedís</i> , or 10 per cent

7. A. de I., Contratación, 42-6-12/16.

8. These percentages have been calculated from the figures in A. de I., Contratación, 39-4-16/7, 42-6-3/7, and the documents — too numerous to mention — used in determining the receipts of private treasure.

9. José de Veitia Linaje, op. cit., lib. i, p. 252.

ordinance of October 11, 1608, providing that only firms composed of two or more partners could buy bullion, wrought a fundamental change in the financial organization of silver merchants, and incidentally led to one of the first appearances in Spain of the limited partnership, or *société en commandite*, on a large scale. The contract forming the partnership, which had to state the names of the partners, the name of the active partner, the length of time the partnership was to endure, and so forth, became operative on the approval of the prior and consuls of the Merchant Gild and the officials of the House of Trade. A bond for forty thousand ducats, likewise subject to the approval of the Gild and House, was also required. When copies of a duly approved partnership agreement and bond had been deposited with the comptroller of the House, where anyone who chose might examine them, the concern was privileged to deal in bullion. But additional security was required before a firm was permitted to buy treasure belonging to the crown or to persons deceased (*difuntos*).¹

A more precarious business than that of the silver merchant could hardly be conceived. Paraphrasing John Stuart Mill, one can say that their profits were a function of three variables: first, the price paid for treasure; second, the correctness and probity of the assay in the Indies; and, third, the honesty of the workmen who refined the bullion. In 1615 the officials of the House of Trade stated that the usual profit on a *castellano* (1/50 mark) of gold was three *maravedís*, or one half of one per cent.² Veitia Linaje tells us that, when silver merchants had good fortune regarding all three variables, they could clear not more than four *maravedís* (about .18 per cent) on a mark of silver, and one *maravedís*

1. José de Veitia Linaje, op. cit., lib. i, pp. 253-255.

2. A. de I., Contratación, 42-6-6/10.

vedi (about .20 per cent) on a *castellano* of gold.³ Considering the great risk entailed, the margin of profits was perilously slender; and, as might be expected, there were many failures. On June 20, 1563, the House of Trade wrote the Council of the Indies that there were fifteen or sixteen silver merchants.⁴ A few years before 1615, eight companies were in operation, but by July 14, 1615, failures had reduced the number to four.⁵ Only three companies — Alonso de Medina y Compañía, Lope de Olloqui y Compañía, and Juan de Olarte y Compañía — bought the private treasure that came from the Indies in 1620.⁶

Since the government was very solicitous regarding the national stock of specie, silver merchants were obsequiously treated. Their accounts could be examined or their homes searched only with the consent of the

3. *Op. cit.*, lib. i, p. 251. Since man has always had a vague feeling that dealing in the precious metals conveys an unrivaled opportunity for profit, the silver merchants doubtless had to bid so much for bullion that only a slender margin of gain was possible in any case. Furthermore, the integrity of the American assays left much to be desired. On several occasions fraud and inexcusable negligence were discovered in the Peruvian analyses. Finally, about the middle of the seventeenth century, the abuses became intolerable, and vigorous measures were employed to eradicate the evil. Some assayers were hanged; others were arrested and sent to Spain, along with all of their goods, which had been confiscated. One of the assayers "died in the jail of the House of Trade, and another went mad in it." The analysis of bullion in New Spain never gave evidence of fraud, but the integrity of the assay was counterbalanced by flagrant corruption in smelting. In 1621, for example, "it was discovered that the centers and souls of many bars of silver were of copper, more than a fifth of the bars being of this metal, which was placed so that the assayers could not discover it, no matter how large the sample taken to analyze" (*Ibid.*, pp. 263, 264). On account of errors in American assays, which had been noticed for some time, it became customary after 1603 to sell gold on the basis of analyses made in Castile (*Ibid.*, p. 250).

4. A. de I., *Contratación*, 42-6-1/5.

5. José de Veitia Linaje, *op. cit.*, lib. i, p. 250. Yet in 1615 the silver merchants advanced funds to outfit the treasure fleets (A. de I., *Contratación*, 41-1-1/2).

6. A. de I., *Contratación*, 39-4-16/7.

president of the House of Trade. Such consent was rarely or never forthcoming. Neither could treasure held by a silver merchant be embargoed without the president's permission. Smuggled gold and silver that reached the home of a silver merchant were accorded the full status of registered treasure. On August 27, 1667, a royal commission, formed to seize French goods as a retaliatory measure, was instructed to examine the papers and search the home of everyone suspected of holding French property, but it was enjoined not to molest any silver merchant.⁷

IV

Table A shows in pesos ⁸ the average annual imports of registered treasure for ten-year periods, public, private, and total receipts being listed separately. As has been stated, the data for this table came entirely from the records of the men who handled the gold and silver. The figures for private treasure before 1536, for which original records are not available, have been derived from those for public treasure for the same period. From 1536 to 1660, public receipts were 26.2 per cent of the total; so this figure has been used in estimating private treasure for the period 1503-36. The remainder of the table has been compiled without resort to conjecture or estimate.

Crown receipts consisted mainly of the royal quint, but also of tribute levied on Indian tribes, sale of papal indulgences, fines and confiscations, profit on token

7. José de Veitia Linaje, *op. cit.*, lib. ii, pp. 265, 266.

8. In this case *peso* means 450 *maravedis* worth of gold or silver. It was equivalent to 652.635 grains of pure silver until December 23, 1642, when its "silver content" was reduced to 522.09 grains. *Peso* also had various other meanings, a good account of which can be found in Haring, "American Gold and Silver Production in the First Half of the Sixteenth Century," *Quarterly Journal of Economics*, xxix, 476-479.

money (before about 1540), and sale of miscellaneous goods. To some extent private treasure consisted of emigrants' remittances and the savings of passengers returning to Spain, but the bulk of it arose from the motherland's favorable balance of trade with the Indies. The colonists, having at their disposal silver mines like Guanajuato and Potosí — the former the richest of all time, the latter throughout the centuries a synonym of great wealth — found it to their advantage to specialize in mining and to export specie in exchange for importable commodities.⁹ The treasure fleets sailed from Spain laden with provisions, wares, and all sorts of merchandise.¹ At first these products were largely Spanish, but later they were ever increasingly drawn from other European countries. The return cargo comprised small quantities of colonial produce — such as hides, copper, tobacco, sugar, indigo, and cochineal — and vast sums of silver. The European goods were exchanged for produce and specie in the fairs of Porto Bello,² Vera Cruz, and Cartagena.³ In 1594 gold and silver formed 95.62 per cent of the return cargo, cochineal 2.82 per cent, hides 1.16 per cent, indigo .29 per cent, and miscellaneous .11 per cent. In 1609, 84 per cent

9. In other words, the colonists had a comparative advantage in mining the precious metals. Consequently, they neglected the production of many commodities to which their resources and aptitudes were suited. Cairnes pointed out that a similar episode occurred in Australia following the gold discoveries in the middle of the nineteenth century ("The Australian Episode," *Essays in Political Economy*, pp. 20-53).

1. Tomás de Mercado (*Suma de Tratos y Contratos*, Seville, 1571, fol. 90) and Alonso de Morgado (*Historia de Sevilla*, 1587, p. 166) ascribed the rise in prices in the sixteenth century largely to the heavy export of goods to the Indies.

2. On October 28, 1659, the prior and consuls of the Sevillian Merchant Guild said: "The fair of Porto Bello is the greatest in the world." A few days later, the officials of the House of Trade said, "The fair of Porto Bello used to be the greatest in the world." (A. de I., *Contratación*, 42-6-12/16.)

3. A. de I., *Contratación*, 42-6-12/16.

consisted of treasure and 16 per cent of other products.⁴

TABLE A

AVERAGE ANNUAL IMPORTS OF TREASURE IN PESOS BY TEN-YEAR PERIODS

Period	Public	Private	Total
1503-1510	75,176.3	211,756.2	286,932.5
1511-1520	114,690.5	323,059.4	437,749.9
1521-1530	61,444.6	173,076.6	234,521.2
1531-1540	356,649.1	760,975.7	1,117,624.9
1541-1550	470,092.0	1,622,451.2	2,092,543.2
1551-1560	1,039,400.4	2,533,505.5	3,572,905.9
1561-1570	1,120,855.2	3,948,895.0	5,069,750.2
1571-1580	1,989,667.8	3,842,042.2	5,831,710.0
1581-1590	3,118,763.3	7,522,685.2	10,641,448.5
1591-1600	4,199,533.3	9,723,139.3	13,922,672.6
1601-1610	3,013,912.9	8,147,794.1	11,161,707.0
1611-1620	2,312,141.9	8,615,974.2	10,928,116.1
1621-1630	1,901,991.4	8,491,049.6	10,393,041.0
1631-1640	1,885,025.5	4,800,065.7	6,685,091.2
1641-1650	1,261,754.9	3,845,115.0	5,106,869.9
1651-1660	569,080.4	1,561,896.1	2,130,976.5

How important this treasure was, how large it loomed in the lives of the Spanish people, can perhaps best be shown by stating that, at the rate prevailing for unskilled labor in Andalusia, the average annual receipts for 1591-95 would have paid for 21½ days' work of all the persons in the country employed for salaries and wages.⁵

4. A. de I., *Indiferente General*, 147-2-16. Treasure so far outweighed other colonial products in the eyes of contemporaries, because of both its absolute amount and mercantilist preconceptions, that the fleets plying between Spain and the Indies were always spoken of as the "fleets going to the Indies to bring back the gold and silver of his Majesty and private individuals."

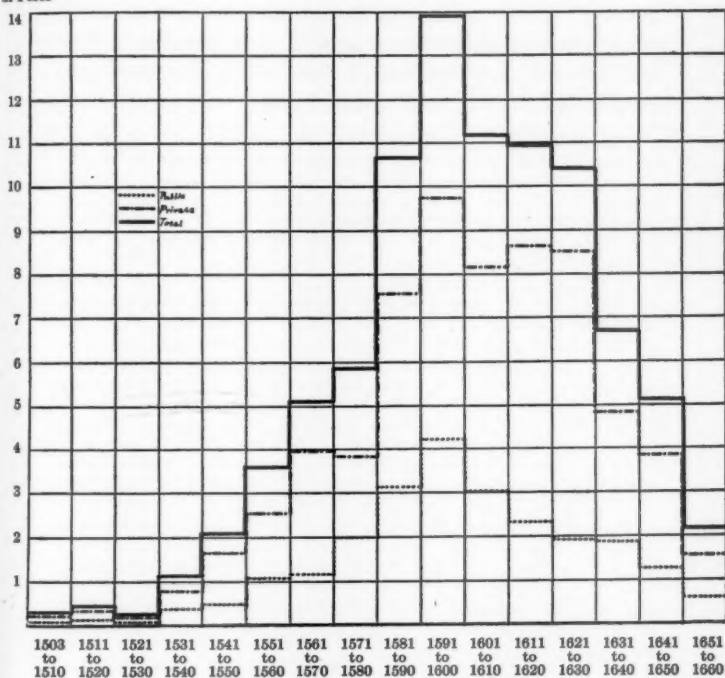
5. There is considerable chance for error in these figures. The data on population have been taken from Tomás González, *Censo de Población de las Provincias y Partidos de la Corona de Castilla en el Siglo XVI* (Madrid, 1829), the most reliable source known to me, but their accuracy is far below that of a modern census. The percentage of population working for hire has been arbitrarily taken at that for the United

Chart I presents graphically the data contained in Table A.

CHART I

AVERAGE ANNUAL RECEIPTS OF SPECIE: TEN-YEAR PERIODS

Millions
of Pesos



States shown by the census of 1920. Furthermore, all employees were not unskilled laborers. Presumably, wages in Andalusia, the region first flooded with American gold and silver, were higher than in the remainder of the country. But all these sources of error do not destroy, tho they impair, the significance of the estimate for the purpose in hand.

From 1503-10 to 1591-1600 there was a steady increase in the receipts of treasure. The period 1600-30 showed a marked decline, and the period 1630-60 a precipitous drop, in registered gold and silver. Altho the scope of the present paper does not permit a complete explanation of the dwindling receipts of specie, the following causes may be named: an increase in interloping;⁶ a rise in the expenses of mining together with fixed prices of the precious metals;⁷ a decrease in the fertility of the mines;⁸ an increase in the *avería*, which in certain years became confiscatory;⁹ decimation of

6. In 1659 the House of Trade and Sevillian Merchant Gild estimated that a million pesos of Peruvian treasure annually crossed the Andes and made their way to interlopers in the port of Buenos Aires. On this account the Gild and House recommended that this excellent port be closed. (A. de I., Contratación, 42-6-12/16.)

7. That this was a handicap was understood by contemporaries. See Alonso de Carranza, op. cit., pp. 371-375.

8. This condition seems to have obtained both in New Spain and in the then Peru. In 1600 Alonso de Oñate, "procurador general de los mineros de la Nueva España, Nueva Galicia, y Nueva Vizcaya," wrote to the Council of the Indies that formerly mines produced from 10 to 50 marks of silver per quintal of earth; whereas the mines then yielding 2 marks per quintal, and with the use of 2 ounces of mercury, were accounted good (A. de I., Audiencia de Méjico, 60-5-45). Antonio de Ulloa, apparently drawing upon a pamphlet, Pretensiones del Potosí, published by Sandoval in 1634, contended that in 1545-71 the mines of Potosí produced a mark of silver per pound of mercury, while in 1634 mines yielding one mark of silver per 1250 pounds were considered good and those yielding more were thought excellent (op. cit., p. 210). This is manifestly an exaggeration, but to admit of such an exaggeration the decline must have been very great. In 1629 Alonso de Carranza asserted that the decadence of Potosí had become so great that even the Chinese, fully aware of it, were making and burying huge balls of silver (op. cit., pp. 371-375). According to Colmeiro, Potosí commenced to decline in fertility after 1606 (op. cit., ii, 427, 428). Soetbeer put it about six years earlier (op. cit., p. 78).

9. In 1630, near the beginning of the precipitous decline in registered receipts, the *avería* amounted to 31.5 per cent. In 1653 it reached 99 per cent, and in 1656 it was 49 per cent (A. de I., Contratación, 42-6-12/16). It should be borne in mind that these figures are not normal; in fact, they are given in order to show abnormal yearly *averías* for an abnormal period. From 1620 to 1628 the convoys were financed by the merchants of Seville, who were able to keep the *avería* at 6 per cent. In 1629 it rose to 17 per cent. In 1635 and 1636 the merchants again con-

the labor supply by rude work in the mines;¹ an increase in trade with the Orient;² unnecessary delay in the delivery of private treasure;³ delivery of private bullion in vellon at more than its market value;⁴ a revival of the practice of sequestration in the closing years of the reign of Philip IV;⁵ and an increase in the wealth and population of the Indies, which caused more treasure to be retained in the colonies.

In conjunction with the documents already mentioned as sources for this study, a few records of the treasurer of the Seville mint and *Relaciones de los Caudales y Efectos que Venían de Indias en Armadas, Flotas, y Naos Sueltas* — all of the Archivo General de Indias —

tracted for the outfitting of the treasure fleets; expenses were kept low enough for the *averta* to be 12 per cent. In 1641 and 1642 it was 14 per cent, but in 1643 it rose to 23.4 per cent. (A. de I., Contratación, 30-5-66/18, 42-6-12/16.)

1. José de Acosta, *Historia Natural y Moral de las Indias* (Madrid, 1591), fol. 131; José del Campillo y Costo, *Nuevo Sistema de Gobierno Económico para la América* (Madrid, 1789), pp. 2-17; William Robertson, *Works* (Edinburgh, 1829), i, 368.

2. Immediately after the permanent settlement of the Philippines, the Spanish colonists began to trade with the Orient through the port of Acapulco in New Spain. Realizing that significant quantities of bullion were filtering out of the realm, the government subjected the trade to many vexatious restrictions. (See *Recopilación*, lib. ix, tit. xlv.) As early as 1594, raw silk (presumably Chinese) was carried to Spain on the New Spain fleet; and the accounts for the New Spain fleet of 1609 stated specifically that Chinese silk ("seda que viene de la China") was brought to the motherland. It is significant that the value of the silk increased from 18,233 ducats in 1594 to 88,687 ducats in 1609 (A. de I., *Indiferente General*, 147-2-16). In 1659 the House of Trade and Sevilian Merchant Guild estimated that 500,000 pesos of Peruvian treasure annually made their way to China through the port of Acapulco in New Spain (A. de I., Contratación, 42-6-12/16).

3. In the closing years of the reign of Philip IV, registers were sometimes sent to Madrid for examination before delivery was made (A. de I., Contratación, 42-6-12/16).

4. A. de I., Contratación, 42-6-9/13.

5. In 1637, for instance, the crown sequestered 500,000 ducats' worth of private treasure. In 1659 the House of Trade and Sevilian Merchant Guild attributed the decline in registered receipts largely to this flagitious practice. (A. de I., Contratación, 42-6-12/16.)

have enabled me to calculate⁶ the ratio between imports of gold and silver. Table B shows the results by ten-year periods. Since no silver, except possibly as a sample, came before November 5, 1519,⁷ the table begins with 1521-30.

TABLE B

GOLD AND SILVER

Period	Silver percentage by weight	Gold percentage by weight	Period	Silver percentage by weight	Gold percentage by weight
1521-1530	2.949	97.051	1591-1600	99.287	.713
1531-1540	89.602	10.398	1601-1610	99.466	.534
1541-1550	87.677	12.323	1611-1620	99.598	.402
1551-1560	87.672	12.328	1621-1630	99.819	.181
1561-1570	98.803	1.197	1631-1640	99.911	.089
1571-1580	99.164	.836	1641-1650	99.848	.152
1581-1590	99.428	.572	1651-1660	99.890	.110

In absolute amounts, 16,632,648.20 kilograms of pure silver and 181,234.95 kilograms of pure gold came registered from the Indies.⁸ Of course, there was smuggled specie also. From the nature of the case, no one can say how much. The amount of smuggled treasure has

6. The data are not as complete as one would desire. In about 50 per cent of the years the figures used comprised all the imports; for about 35 per cent the records do not permit the separation of gold and silver, and for the remaining 15 per cent one can be certain only as regards a part of the receipts.

7. A. de I., *Contratación*, 39-2-1/8.

8. The estimates of previous writers, a good summary of which is given by Colmeiro (*op. cit.*, ii, 431-434), vary from a little less than two to almost ten times my figures. The glamour of romance surrounding the exploits of the discoverers and conquerors of a new world, and the inordinate esteem in which the precious metals were then held, doubtless played a part in the overestimation by contemporaries of the imports of gold and silver. But perhaps the largest factor was the wide divergence between the marginal uses of treasure in America and Europe. When the booty derived from the spoliation of Indians arrived, and it was learned that gold had been used by the Aztecs for such trivial purposes as the adornment of Indian slippers with nineteen bells of gold (A. de I., *Contratación*, 39-2-1/8), it was inevitable that the Spaniards should fancy that the Indians possessed as much gold as they themselves would have required before pushing its marginal use so low.

been estimated at from ten to fifty per cent of the registered, but there is reason to believe that it was rather nearer the former than the latter figure. Smuggling was fraught with danger and expense.⁹ Probably it was really significant only when there was grave danger of sequestration or of an inordinate *avería*.

Until about 1515 most of the treasure came from Hispaniola. From 1516 to 1530 Porto Rican exports almost equaled those of Hispaniola, and Cuban exports became about half as great. Before 1531-35 Tierra Firme and New Spain did not take the predominant positions they were destined to occupy.

Chart II shows the relative amounts of imports drawn from New Spain and Tierra Firme between 1531 and 1660. With the receipts from New Spain I have included those from Honduras; so *Tierra Firme* means South America and *New Spain* North America. It is impossible to distinguish for the whole period the treasure that came from the Antilles, but one can say that it was not of moment after the middle of the sixteenth century. Figures are given in the periods for which I have data.

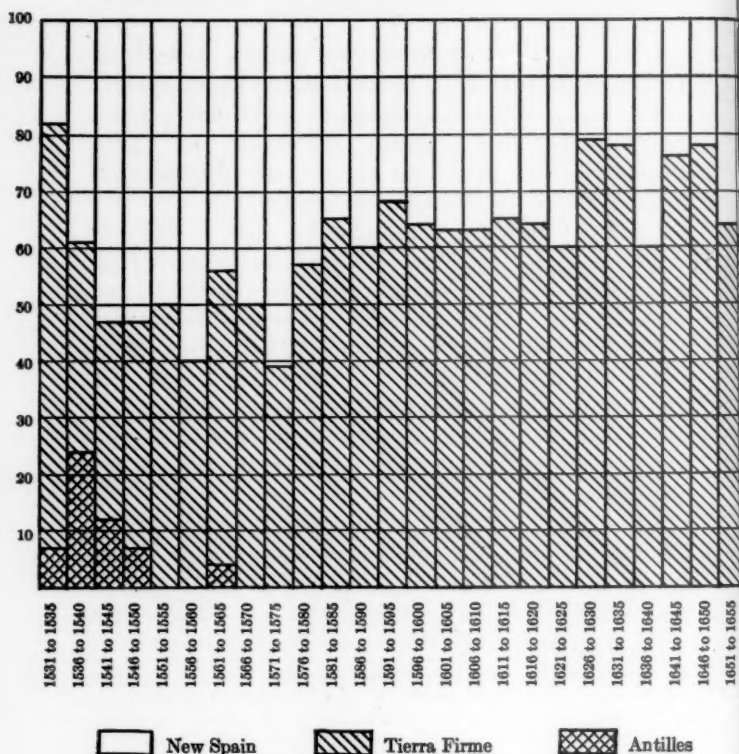
After 1545, the year that marked the discovery of Potosí, the percentage of receipts coming from Tierra Firme showed a steady increase. From 1581 to 1660, about half the period under investigation, Tierra Firme furnished roughly two thirds and New Spain one third of the total Spanish imports.

V

Let us examine briefly the effects of American treasure upon the motherland. For a season industry seems to have responded to the rise in prices precipitated by the influx of treasure. The resultant material prosperity,

9. A. de I., Contratación, 42-6-12/16.

CHART II
PERCENTAGES OF RECEIPTS BY EXPORTING REGIONS



together with the effect of the specie on national psychology, played a part in the passage of Spain through her golden age of literature and art.¹ But ultimately the importation of treasure (the exportation of which was retarded by legal restrictions) in exchange for goods sapped the economic vitality of the country and augmented the price revolution, which handicapped export industry. Historians have generally agreed that American gold and silver fanned the flames of Hapsburg imperialism, added to the zeal with which Spanish rulers defended the Catholic faith against Protestant and Mohammedan, furnished sinews of war, and, in short, constituted an important factor in Spain's aggressive foreign policy.² Both the absolute amounts of crown treasure and the stability of the receipts, which made them dependable and reckonable, indicate that this thesis is tenable. Furthermore, private treasure, through sequestration upon arrival, contributed very largely to public revenue. And it should be remembered that, because of the relatively undeveloped state of international finance, specie was then highly prized as a means of supporting military operations in distant countries.³ So gold and silver from the Indies were a factor in the shedding of the blood of Spain — sacrificed on altars of imperialism and religious fanaticism — on distant European battle-

1. That Spanish life was directly influenced by American gold and silver is attested by the use Cervantes made of treasure and treasure fleets in *Rinconete y Cortadillo* and *El Celoso Extremeño*, two of his "Novelas Ejemplares," which contain the best descriptions extant of Spanish life and customs.

2. Professor Merriman, perhaps the greatest recent student of Spanish history, seems to share this opinion (*op. cit.*, iii, 45, 255). Laiglesia, tho he recognized the general acceptance of this view (*Caudales de Indias*), opposed it as regards the Emperor on grounds that do not seem convincing.

3. Cf. Adam Smith, *Wealth of Nations*, i (Cannan ed., London, 1904), 407-412; F. W. Taussig, *International Trade* (New York, 1927), pp. 274-278. This is one reason why the mercantilists placed great emphasis upon the accumulation of gold and silver.

fields. Other hordes of men, lured by the El Dorados of New Spain and the then Peru, emigrated at their most productive age. American treasure doubtless created the illusion of prosperity and thus fostered extravagance and vagrancy. One cannot escape the conclusion that the gold and silver drawn from the Indies had baneful effects upon the mother country.

Next let us turn to the effects of Spanish imports of gold and silver upon Hispanic America. One who examines the records of the House of Trade, especially for the early years, cannot fail to be impressed by the enormous part played by American gold in the exploration and development of the New World. The sailors who accompanied Columbus on his first voyage, including the heirs of the men left on Hispaniola, were paid in part with gold brought to Spain between 1513 and 1519.⁴ Treasure drawn from the Indies financed the memorable voyage of Magellan, which proved rich in scientific discovery and demonstrated to the lay mind the sphericity of the earth.⁵ It paid the salaries of such notable servants of Spain as Amerigo Vespucci, chief pilot of the House of Trade, and Sebastian Cabot; and it provided the means to purchase and to carry to America the seeds, plants, animals, tools, books, and scientific instruments of the Old World.

4. A. de I., *Contratación*, 39-2-1/8, 39-2-2/9. In the debates over the financing of the first voyage of the Admiral, I have never seen this matter mentioned. It is evident that the sailors themselves made "advances" for a substantial part of the cost of the voyage.

5. *Ibid.*, 39-2-2/9.

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THE MONETARY DOCTRINES OF MESSRS. FOSTER AND CATCHINGS

SUMMARY

I. The authors' thesis broken up into its constituent parts. Some criticisms of those parts which are not peculiar to the authors, 474. — II. The authors' distinctive doctrine of the connection of trade depression with the phenomena of *profit* and *saving*, 477. — The alternative hypothesis implicit in their earlier "Cases," 479. — III. Critical analysis of their later "Cases" and of their theory of the operation of bank-loans, 485. — IV. Criticism of the statistical evidence adduced in support of their theory. Summary and conclusion, 494.

I

THE purpose of this article is to offer some comments on the monetary doctrines expounded by Messrs. Foster and Catchings in Part V of their book *Profits and* elsewhere, as well as on some of the criticisms of these doctrines made by the four writers whose essays were adjudged the most successful in a competition held for a prize for the best adverse criticism of Messrs. Foster and Catchings' book. No comments will be offered on Parts I to IV of *Profits*, which consist in the main of an exposition and defense, on well-established lines, of the general working of the institutions of economic freedom, competition, and private property. Nor will any attempt be made to treat in detail of those portions of the Pollak Prize Essays, interesting tho they are, which are devoted rather to elaborating the authors' own theories than to refuting the theories here under review.

I hope that Messrs. Foster and Catchings would agree that their general standpoint can be fairly summarized in the three following propositions. (1) The phenomena

associated with what is called "trade depression" — accumulating stocks of unsold goods, unemployment, restriction of output below capacity — are the only important obstacles in the way of the abolition of poverty and a rapid raising of the standard of life for the whole population. (2) These phenomena are purely monetary in origin, in the sense at least that they could not arise in the absence of a monetary economy. But (3) they are due, not to any purely technical features of the monetary machine (for instance, the gold standard, note-issue regulations, or central bank policy), but to something inherent in the very nature of an economy characterized by the search for *profits* and by the making of individual and corporate *savings*. Before attempting to phrase more precisely, and to discuss more minutely, this last proposition, it seems advisable to comment briefly on its two predecessors.

(1) *Trade depressions are the only important cause of poverty.* I suspect that this proposition may be much more nearly true for the United States than for Great Britain. In Great Britain, in spite of our preoccupation with the problem of unemployment, we have to remember the authoritative pronouncement of Messrs. Bowley and Hirst in 1915: "It can hardly be too emphatically stated that of all the causes of primary poverty which have been brought to our notice, low wages are by far the most important." As the same investigators have shown, the position of most low-paid regular workers has improved perceptibly since that date; but he would be a bold man who would prophesy that poverty and the trade cycle could be buried in the same grave. Even for America, I cannot help feeling that our authors' confidence in the truth of their own discovery is apt to generate in them an exaggerated optimism, which is most marked in their latest and most popular

work, *The Road to Plenty*. I gravely fear that "The Little Gray Man," the hero of that emotional romance, may, even if he gets his Plan to work, find a certain measure of disillusionment in store for him. But this, after all, is a matter of judgment and emphasis, on which further argument here would be barren and out of place; and we can all cordially agree that the causes of trade depression are well worth all the careful and elaborate study which they are now receiving.

(2) "*The trade cycle is a purely monetary phenomenon.*"

I here cast this proposition in the form of a quotation from Mr. Hawtrey, as a reminder that it will be endorsed by many who will dissent from the more particular diagnosis shortly to be discussed. It would not be sensible to attempt to set out fully here the strong objections which exist, in my view, to accepting it, or to elaborate the share in the causation of the trade cycle which may be attributed to variations in harvests, to inventions, to the inevitable discontinuity in the process of investment in the instruments of production and transport employed by a highly industrialized and rapidly progressive society. But it is relevant to my purpose to notice the argument (*Profits*, pages 4-5, 224, 421) by which Messrs. Foster and Catchings seek to win assent to the proposition. Under a barter system, it is urged, a general overproduction of goods could not occur, since the goods would provide a market for one another: "general overproduction" means simply overproduction *relatively to available money*. I see no reason to suppose that this is true. Even Robinson Crusoe, fishing 18 hours a day in his new boat, could find that he was overproducing goods *relatively to his past and present efforts and sacrifices* — that is, getting less utility per unit of labor and waiting incurred than he expected. And in a slightly more complex society, as Professor Pigou

has shown, it is quite possible for *A* to double his output in the expectation that each of his goods will exchange for twice as many of *B*'s goods as before, and for *B* to double his output in a similar expectation; so that both, finding the terms of trade unchanged, have cause to regret their action, and each, if he tries to stick out for the *expected* terms, will find goods accumulating on his hands. Mr. Souter's ingenious demonstration on similar but more elaborate lines (Pollak Essays, pages 25-33), while I do not pretend to have entirely mastered its later phases, seems to me to be conceived aright. So does his stricture (page 45, note) on the "naive belief that a curtailment of expenditure of money in one direction is immediately and proportionately 'compensated' by increased expenditure in another." The "monetary" school of trade-cycle theorists seem to me to overlook the significance of the *inelasticity*, in time of slump, of the demand for certain important things which are being relatively overproduced — particularly transport facilities and constructional goods; whence it follows that any attempt to expand output on the part of these trades would, even under barter, furnish an inducement to other trades to *restrict* output. The diminished flow of money spent in such times on the products of the first group of trades is not a cause but a symptom of profound industrial maladjustment.

This is not of course to deny that the variability of industry is acutely aggravated by monetary causes. One such aggravation, which our authors note but, I think, wrongly interpret, will be discussed below. Moreover, when they come to the discussion of practical remedies, they are happily led to advocate one which can be, and has been, approved by many who would endorse neither their nor any other purely monetary theory of the trade cycle. Their prescription, long held

up a tantalizing sleeve, and at length triumphantly announced in chapter 15 of *The Road to Plenty*, turns out to be none other than our old friend,¹ the planning of long-range programmes of construction by central and local governments and big corporations, with a view to putting them into operation in such a way as to counteract the variations of private demand. On the quantitative and practical aspects of this suggestion some wise and cautious words of Dr. Bowley (*Is Unemployment Inevitable?* pages 367-368) deserve attention; on the question of principle the present writer, at all events, is in entire accord, and would like to put into the hands of every member of the British Cabinet a copy of this sentence from *The Road to Plenty* (page 201): "When production is far below capacity, and many workers are unemployed because demand for their products is insufficient, it is far better for the Government to spend money on public works than to use the money to pay debts."

II

We come at last to the third and most distinctive proposition: *The monetary cause of trade depression is bound up with the phenomena of profit and saving.* The experience of the critics (Pollak *Essays Comments*, pages 6 ff.) seems to show that in attempting to phrase this proposition more precisely, we must exercise great care if we are to avoid being accused by our authors of misstating their position. I will therefore confine myself for the moment to verbatim quotations. "First, there is no possibility of attaining the economic aim upon which all are agreed unless consumers somehow obtain enough money, year in and year out, to buy the goods about as rapidly as they are

1. Whom we owe, I believe, originally to Mr. and Mrs. Webb (*Minority Report of Poor Law Commission*, 1909).

produced; second, the present money and profit economy does not enable consumers long to obtain the required money; third, there is consequently no possibility of sustained economic progress" (Profits, page 231). "The system itself . . . *normally and persistently*, decade after decade, fails to provide consumers with enough money to acquire the goods which they are perfectly able and willing to produce" (Profits, page 233; my italics). "As industry is now financed and corporate savings are now effected, the flow of money to consumers does not long keep pace with the flow of goods" (Profits, page 399).

Now, it is perfectly true that Messrs. Foster and Catchings apparently do not regard the defect thus asserted as incurable—indeed, they believe they know how to cure it. But it is equally evident that they mean something much more than that, in a world where human foresight and organization are imperfect, prices will sometimes have to be lowered if goods are not to remain unsold. Mr. Olmsted is, in my judgment, quite justified in saying that they try "to invest the mechanism of this defect with a mysterious atmosphere of mathematical certainty" (Essays, page 69); and Mr. Bickerdike, in saying that "the authors suggest everywhere some inherent arithmetical difficulty in reconciling saving with the maintenance of a sufficiency of consumers' purchasing power" (Essays, page 76). If there turns out to be no such inherent trick, so to speak, in the nature of things, nine tenths of our authors' supposed contribution to the theory of the trade cycle must be rejected as based on an illusion. That their practical good sense enables them to reach several correct conclusions and to advocate a number of sensible courses, I have already admitted, and could, if space permitted, more abundantly illustrate. But it

is quite clear that they started out to demonstrate the existence of a certain definite and persistent kink in the economic scheme; it is by no means clear from their comments on the Pollak Essays that their critics have convinced them that their analysis was erroneous; and it is on their exposition of the nature of this supposed kink, which is, after all, the only really distinctive feature of their work, that they must expect an academic critic still to concentrate attention.

They develop their argument partly by means of a series of hypothetical "Cases," partly with the aid of more general reasoning and an appeal to statistics. They attach so much importance to the Cases that it seems desirable to examine at any rate the leading members of the series in some detail. We are to suppose a single integrated corporation in control of the whole production and trade of the country, pocketing the whole receipts from the sale of goods to consumers and disbursing the whole wages bill and dividend bill. We are to suppose further (1) that the goods produced in any "year" or accounting period I are sold in the following "year" II; (2) that the wages relevant to the goods produced in year I and sold in year II are paid in year I; (3) that the dividends relevant to the goods produced in year I and sold in year II are paid in year II; (4) that the wages paid in year I are spent in year I; (5) that the dividends paid in year II are spent in year II. Thus we might get equilibrium year after year with the following position (Case II, Profits, p. 273):

Output.....	1,000,000 goods
Sales.....	1,000,000 goods
Receipts.....	1,000,000 dollars
Wages paid.....	900,000 dollars
Dividends paid.....	100,000 dollars
Price-level.....	100

There are certain difficulties about this construction.

First, what exactly is meant by the "production" of goods? If we try to reckon as "produced" on any day those goods that receive their final touches on that day but were begun some time — say, for the sake of illustration, six months — earlier, then the goods produced in the first half of year I will be partially due to labor which was paid in year 0, and the wages paid in the second half of year I will be partially paid on behalf of goods which will not be produced till year II: and this is ruled out by assumption (2). It seems that we must conceive of production as an *instantaneous* act, to be followed a year later by sale. On this hypothesis our corporation will at any moment have to have twice as much working capital embodied in goods as it would if we adopted the more natural hypothesis that value is being steadily added to goods at an even rate between the date of commencement and the date of sale. This hypothesis of instantaneous production seems to me inconvenient, but I do not suggest that it is impossible to work with.

More serious is the question of the point of time at which dividends are supposed to be paid. It is one of our authors' cardinal doctrines (Profits, page 31) that dividends cannot be paid until the receipts out of which they are paid have been harvested; yet in Case II we find that the dividends paid in year II are partly derived from the sale of goods on which they themselves have already been spent. It is no wonder that Mr. Novogilov tries to rescue the authors from this self-contradiction by representing them as having laid down that dividends are paid in the year following that in which they are earned by the sale of goods (Essays, page 97); but there seems no doubt that in this Mr. Novogilov has committed a generous error, and allowed the terms of assumption (3) to escape his memory.

We are driven, I think, to suppose that Messrs. Foster and Catchings are picturing some such process as the following. The "year" must be conceived of as divided into x "periods"; toward the end of each "period" the corporation, having during the "period" paid out $\frac{900,000}{x}$ dollars in wages and received them back in pay-

ment for goods, feels justified in distributing $\frac{100,000}{x}$

dollars in dividends, which it counts on receiving back, also in payment for goods, before the end of the "period." I suspect that they picture x as "1", so that the "year" and the "period" are identical; but I do not feel quite sure of this, and so far as Case II goes it is not necessary either to their conclusions or to ours that it should be so. Armed with this notion of the "period," we can enquire into the community's monetary arrangements. How much money will the corporation need to have on hand at the beginning of the "period"? If all its payments were wage payments (as in Case I), it would need $\frac{1,000,000}{x}$ dollars; the

velocity of circulation of money (that is, the number of times each unit of money changes hands per year in transactions of every kind) would be $2x$; the "circuit velocity" of money (our authors' name for the number of times each unit of money changes hands per year in purchase of goods for final consumption) would be x .

Now, does the fact that one tenth of the corporation's payments are dividend payments make any difference to this result? It seems that we are free to make either of two suppositions. Either (a) the corporation pays the dividends with money already received during the "period" from the wage-earners, thus sending one ninth of the money already used for wage-payments

during the "period" on a second circular journey (in this case the total stock of money will be $\frac{900,000}{x}$ dol-

lars, and its average circuit velocity $\frac{10x}{9}$). Or (b) the corporation pays the dividends with a stock of money specially hoarded for that purpose since the beginning of the "period." In this case the total stock of money will be $\frac{1,000,000}{x}$, and its average circuit velocity x , just as if all the corporation's payments were wage-payments.

If we are to stick as closely as Messrs. Foster and Catchings will allow us to their principle that dividends must be earned before they are paid, the former hypothesis, (a), seems to me far the more natural. But if we choose the latter, (b), we must note carefully that while the corporation does not actually advance money to the recipients of dividends except to a small extent, it is conceived of as holding idle, during nearly the whole of each "period," the whole of the money which will be required to satisfy their claims.

The importance of these conclusions will become plain when we come presently to consider our authors' theory of bank loans (Cases X and XI); meanwhile, there is a little to be said about some of the intervening cases. Up to and including Case IX we are to suppose the volume of money and its circuit velocity to be constant (the latter condition is in fact, tho they do not notice it, infringed in Case VII); up to and including Case VII we are also to suppose the price-level to be incapable of alteration. The most important of these cases is No. VI, in which, instead of paying dividends, the corporation spends its profits in hiring additional labor in order to increase its capital facilities and its output. Thus, starting from Case II, we get in successive years the following situations.

	Year I	Year II	Years III, IV, etc.
Output.....	1,000,000	1,100,000	1,100,000 goods
Sales.....	1,000,000	1,000,000	1,000,000 goods
Receipts	1,000,000	1,000,000	1,000,000 dollars
Wages paid.....	900,000	1,000,000	1,000,000 dollars
Dividends paid....	100,000	0	0 dollars
Addition to stock of unsalable goods	0	0	100,000 goods
Price-level.....	100	100	100

Thus they have demonstrated, with fair lucidity,² that if production increases and money remains constant, then, if prices cannot be reduced, goods will remain unsold. This result, however, is so firmly in accord with established monetary theory that one cannot really suppose that they claim for it any novelty or interest. The novelty lies in the thesis, presently to be discussed, that there is some inherent difficulty about increasing the supply of money to match the increase in production. All that is novel about Case VI is the terms in which the authors explain what has happened.

Money [they write] that is once used to bring about the production of goods is again used to bring about the production of goods, before it is used to bring about the consumption of goods. In other words, it is used twice in succession to create supply; whereas if the \$100,000 in question, instead of being *invested* in the production of additional goods, had been paid out as dividends and spent by the recipients, the \$100,000 would have been used alternately to bring goods to the markets and to take them off the markets.

I quote this passage in full, because its motive continually recurs in the remainder of the book; but after prolonged study I am still unable to attach any sense to

2. There are some unexplained things about the actual figures. Since 900,000 units of labor used to produce 1,000,000 goods, while 100,000 units of *new* labor produce only an extra 100,000 goods, it must be assumed that 10,000 of these units of new labor in year II are devoted to increasing "capital facilities." It is not clear how these 10,000 units of labor are employed in year III, since it seems that they neither produce a further increase in the output of goods in that year nor (so far as we are told), by adding further to capital facilities, enable the output of goods to be still further increased in subsequent years.

it whatever. The money "invested in the production of additional goods" is, as the authors have themselves insisted, forthwith "spent by the recipients," that is, by the wage-earners who are engaged in the production of the additional goods. And how on earth can the corporation be using the same piece of money twice in succession to "create supply" — that is, presumably, to pay wages — without receiving it back in the interval from some wage-earner in payment for goods "taken off the market"?

In Cases VIII and IX the authors remove the assumption that the price-level must not fall. The treatment of Case IX (Profits, page 300) is in my judgment muddled and muddling, and ends by proving far too much; namely, that if, money-supply being fixed, the corporation tries (as in Case VI) to reinvest in its own business and to allow prices to fall as output increases, it will find itself making no profits at all. Since, however, the authors' main standpoint — that a falling price-level is exceedingly likely to discourage enterprise and production — is shared by many other writers, I do not propose to discuss it here in detail. I will only confess to agreeing with Mr. Souter and the shade of Marshall (Pollak Essays, pages 43-44) that there is a tendency among price-stabilizers to exaggerate the evil effects of a steady and continuous fall in prices which is due to a steady and continuous increase in productivity per head. For under such conditions, even tho money wages are not reduced, a rising real wage-bill to employers does not mean a rising real labor-cost per unit of goods produced.³

3. The authors seem in error in citing Mr. McKenna — at any rate the Mr. McKenna of 1921 — as opposed to falling prices *per se*. The passage quoted (Profits, page 304) is an argument against a drastic curtailment of the supply of money. Later in the same speech Mr. McKenna remarked: "If we increase the commodities available for pur-

III

We reach at length the central stronghold (Profits, chapter 27) in which the authors, removing the condition that the supply of money remain unaltered, expound the nature of the kink in the scheme of things which tends to prevent the flow of money incomes from increasing as rapidly as the flow of salable goods. Once more we must beware of their caution against falling into an *ignoratio elenchi* (Comments on Pollak Essays, pages 6 and 12); we must not accuse them of saying that it is *inevitable* that the flow of money incomes should fail to keep pace with the flow of goods—they even give instances of circumstances in which it has not done so (Profits, pages 410–413). But if words mean anything, they do assert much more than that it *sometimes* does so, or even that it happens to do so *as often as not*; they imply that there is on the balance a persistent underlying tendency for it to do so—a tendency which it will need considerable organized effort and ingenuity on the part of society to overcome. In support of this version of what they assert, I must once more have recourse to quotation (the italics are mine): “In modern trade, on the contrary, *the ordinary course* of financing increased production through the expansion of bank credit, in accordance with the tenets of sound business, upsets the annual equation” (Profits, page 320). “The processes whereby capital investments are made do not *normally* bring forth increased consumer demand in proportion to the increased production that results from

chase without any increase of purchasing power, we shall deflate, and prices will fall. Deflation of this kind can be effected without producing the evils to which I have just referred. . . . There can still be room for a fair return on capital and a fair reward for labour. This is the kind of deflation at which we ought to aim.”

the enlarged capital facilities" (Profits, page 372). "*As industry is now financed* and corporate savings are now effected, the flow of money to consumers does not long keep pace with the flow of goods" (Profits, page 399). They cannot run away from the words which I have italicized without abandoning all that is distinctive in their theory.

Mr. Souter, by constructing a case of his own (Essays, pages 49-51), has no difficulty, in my judgment, in showing that this belief of Messrs. Foster and Catchings is an illusion, and that not only is it possible (which they would apparently admit) for a banking system so to function as to increase money incomes in proportion to increases in output, but (which is the point in dispute) that there is no a priori reason connected with the phenomenon of profits for expecting it to function in any other way. Mr. Novogilov takes the more heroic course of dissecting and amending their own cases, which he does with great acumen, tho not, in my judgment, with complete success. Our authors (Comments on Pollak Essays, page 15) attempt to discredit Mr. Novogilov's essay on the alleged ground that he breaks the rules by treating the cases as growing out of one another instead of as independent and isolated hypotheses. But a reference to Profits, pages 308-309, shows that they themselves intend the three crucial cases (II, X, and XI) to represent the position in successive years: their attempt to rule Mr. Novogilov out of court for doing the same is, therefore, in my opinion, quite unfair.

Undeterred by Mr. Novogilov's unmerited fate, I propose to make an attempt to grapple directly with Cases X and XI. Starting from the equilibrium position described in Case II, we are to suppose (Profits, page 309) that in the following year the corporation borrows

\$90,000 of new money from the bank and pays it out in wages. It thereby increases its output by 100,000 goods, which, however, in accordance with the original assumption (1), will not be ready for sale till a year later. The position is set out as follows.

	Year I (Case II)	Year II (Case X)
Output.....	1,000,000	1,000,000 goods
Sales.....	1,000,000	1,000,000 goods
Receipts.....	1,000,000	1,090,000 dollars
Wages paid.....	900,000	990,000 dollars
Dividends paid....	100,000	100,000 dollars
Price-level.....	100	109

The first comment to be made is this. There are certain very real difficulties, which I have tried to face elsewhere,⁴ about studying the behavior of the price-level *during a process* of money-expansion. Without attempting to go deeply into them, let us recall the distinction drawn above between the "year" and the "period." To define those terms precisely, the "year" is (on the authors' assumption of instantaneous "production") the interval of time which elapses between the date at which an article is produced and the date at which it is offered for sale; the "period" is the interval of time during which a unit of money is used once for the purchase of goods by wage-earners. Now if, as is certainly the case in real life, the year is longer than the period, the new money which is paid out in wages and spent on goods in the first period of the year will be used again for the payment of wages and the purchase of goods in each later period of the same year; and we must allow for this in our account of the effect of the process of money-expansion on the price-level. I feel pretty sure, however, that this difficulty is not the source of the authors' troubles. It seems quite clear that in Case X

4. See my *Banking Policy and the Price Level*, pp. 60 ff., and Pigou, *Industrial Fluctuations*, Part I, chap. 14.

they are assuming that the "year" and the "period" are identical and that none of the new money created by the bank in year II is spent more than once by a wage-earner in that year; and in this simplification I am glad to follow them.

But the main point to notice is that upon which Mr. Novogilov has rightly pounced (Essays, page 97) — the figure of \$100,000 entered by the authors as the dividends paid in year II. No explanation is offered of this figure; yet it seems to require a good deal. Here is the corporation having sold to wage-earners for \$990,000, instead of the old \$900,000, goods which cost it some \$810,000⁵ in the previous year to produce; yet it pays out to its shareholders only the same money sum that it did in the previous year, and that money sum represents a smaller command over goods. It seems unlikely that we shall derive much illumination from an assumption so little in accord with what we know to happen, in periods of rising prices, in real life. From what our authors have told us of the corporation's previous habits (Profits, page 308), we might even expect it to pay out the whole of its realized profits in dividends; it is surely at least reasonable to suppose that in year II it will be willing, as it was in year I, to pay out one dollar of dividends for every nine dollars received from the sale of goods to workpeople. In that event the dividends paid will be \$110,000; the total receipts, \$1,110,000; and the price-level, not 109, but 110.

We are left, as I have said, to guess at the reasons for which the authors make their corporation behave in so improbable a manner; but it is impossible to resist the suspicion that they do so because they believe that, however much it may want to raise its dividends, *it will*

5. About \$817,000, if we adopt the authors' supposition that in the second year $\frac{99}{100}$ of the total sales are made to wage-earners.

not be able to find the money to do so. In order to see whether there are any grounds for such a belief, we must revert to the two alternative hypotheses about the community's monetary arrangements set out in connection with our discussion of Case II. I propose to work first on what I consider far the more reasonable hypothesis, because it springs naturally out of the attempt to conform as closely as possible to the authors' principle that dividends must not be paid until they are earned. That hypothesis (*a*) is that the community possesses, to start with, 900,000 pieces of money, the whole of which (in accordance with our original assumptions (4) and (5)) is at the beginning of each year in the hands of the corporation; and that out of every nine pieces of money paid to and received from wage-earners in any "period" (which, we have agreed, now also means in any year), one piece is sent on a second circular journey, this time to and from the recipients of dividends. On this hypothesis, there is no difficulty about what happens in year II: 10,000 of the new pieces of money, as well as 100,000 of the old pieces of money, are used a second time, namely, for the payment of extra dividends. Thus the average circuit velocity of money is kept unchanged; and we note also that by the end of the year the stock of money has been increased by 10 per cent — that is, in the same proportion as the output, the wages-bill, the dividend-bill, and the price-level.

Let us now, using the same monetary hypothesis (*a*), push on into Case XI, representing the events of year III, during which the additional output of year II comes on to the market, while output is still further increased with the aid of still further loans from the bank. Messrs. Foster and Catchings contend that in that year the price-level must fall below the level

reached in year II, unless the supply of money is increased at an accelerating rate. It is not, I think, worth while to transcribe their actual figures, since, as Mr. Novogilov points out, they are clearly vitiated by the supposition that bank money and output increase, not in geometrical but in arithmetical progression — that is, that in spite of the big profits realized in year II the *rate of increase of production*⁶ declines in year III. But their main defect is (as Mr. Novogilov also sees) the same as that of Case X — that they assume that the dividend-bill remains absolutely fixed (apparently to all eternity), while the money-supply and the wages-bill continue to rise. On hypothesis (a) there is, as we have seen, no earthly reason why this should happen: the annual increase in the receipts from wage-earners not only justifies a corresponding increase in the dividend-bill, but provides the money instruments with which it can be made. The complete story of the three years is told in the following table.

	Year I (Case II)	Year II (Case X, amended)	Year III (Case XI, amended)
Output.....	1,000,000	1,100,000	1,210,000 goods
Sales.....	1,000,000	1,000,000	1,100,000 goods
Receipts	1,000,000	1,100,000	1,210,000 dollars
Wages paid....	900,000	990,000	1,089,000 dollars
Dividends paid.	100,000	110,000	121,000 dollars
Money-stock at end of year ...	900,000	990,000	1,089,000 dollars
Price-level.....	100	110	110

Thus we get a uniform rate of increase of money and output with (after the first inevitable kink) an unchanged level of prices. The authors' conclusion (Profits, page 310) that "the higher price-level which results from an increase in the volume of money as pro-

6. On pages 99-100 of the Essays, Mr. Novogilov several times inadvertently writes "rate of production" for "rate of increase of production."

duction expands cannot be sustained unless the volume of money is increased at an accelerating rate" turns out to be without foundation.⁷

The only loophole that I can see for Messrs. Foster and Catchings is that they should take refuge in our alternative hypothesis (*b*) about the community's monetary arrangements: and this loophole is not difficult to block. That hypothesis is that, while dividends are not paid till the receipts from wage-earners have been harvested, it is for some reason impossible to use for the payment of dividends the pieces of money which have been received from the wage-earners. In this case the corporation must start year I and year II, not with 900,000 but with 1,000,000 units of money. And if it

7. In view of a later argument of the authors (see part IV, p. 497), it is of interest to set out the balance-sheet of the corporation (omitting fixed capital, about which we know nothing) at the end of each year.

Year I

Capital.....	\$1,800,000	Goods "produced," but not ready for sale, at cost	\$900,000
		Cash in hand	900,000
			<hr/>
			\$1,800,000

Year II

Capital.....	\$1,800,000	Goods.....	\$990,000
Surplus.....	90,000	Cash	990,000
Debt to bank....	90,000		
	<hr/>		<hr/>
	\$1,980,000		\$1,980,000

Year III

Capital.....	\$1,800,000	Goods	\$1,089,000
Surplus.....	189,000	Cash	1,089,000
Debt to bank....	189,000		
	<hr/>		<hr/>
	\$2,178,000		\$2,178,000

Thus a growth of surplus, or undivided profit, is seen to be quite compatible with stability of the price-level.

can borrow only for the payment of wages, it does follow that in year II, although it is making a profit of some \$180,000 on the goods sold to wage-earners, it will be unable to pay more than \$100,000 to its shareholders; and that, tho it starts year III with a stock of 1,090,000 units of money, yet since it will require all these for the payment of wages it will still be unable to increase its dividends beyond \$100,000. It is difficult to think of any reason for this curious taboo. Presumably, just as in Rossel Island there are certain kinds of money so sacred that they are used only for the purchase of wives and pigs, so in our hypothetical community the dividend-money is so sacred that it must not be soiled by the hands of wage-earners.⁸ But if this state of affairs really prevails, then it surely follows that the hoarding of this special money through the greater part of the year is a business expense to the corporation, for meeting an addition to which it will not hesitate to borrow, any more than it will hesitate to borrow to meet an increase in the wages-bill. If the authors reply that in real life corporations do not borrow in order to accumulate funds for the eventual payment of dividends, I will resist the temptation to reply, in their own words when commenting on Mr. Novogilov (Pollak Essays, page 15), that "it is beside the point to show that any of the Cases . . . does not conform . . . to the actual business world. It is not intended to conform." For unless these cases are intended to illuminate what happens in real life, they are a great waste of all our time. I will reply rather that in real life, as Mr. Souter has shown, business firms *do* borrow in order to pay profits — if not their own profits, then other people's. The miller borrows to pay for wheat which is already loaded with the

8. W. E. Armstrong, "Rossel Island Money," *Economic Journal*, Sept., 1924.

profits of the farmer, the baker to pay for flour which is already loaded with the profits of the farmer and the miller; and the money thus created serves perfectly to provide profits for the baker as well. Mr. Souther is quite justified in pointing out (Essays, page 52) that Messrs. Foster and Catchings, having shown that the assumption of complete vertical and lateral integration does not impair the general validity of Case II, tacitly and illicitly assume that it cannot impair the general validity of Cases X and XI. If we are compelled to assume integration and monetary hypothesis (b), we must be allowed also, if our results are to have any relevance to real life, to assume that the corporation is able and willing to borrow for such a legitimate business expense as the storage of sacred money. Thus, as under hypothesis (a), the stock of money will increase annually by 10 per cent, and the price-level will rise in year II to 110 and thereafter remain unchanged.⁹

We need not delay long over Case XII, in which it is correctly demonstrated that the repayment of a bank loan by the corporation will contract money and depress prices, and incorrectly stated (my italics) that "this is, in fact, precisely what happens *in the ordinary course* of financing increased production by means of expansion of the volume of bank credit." It may be true that in real life some individual producers (especially those whose operations are seasonal) periodically free themselves altogether from indebtedness to the banks; but Messrs. Foster and Catchings adduce no arguments for

9. Mr. Novogilov's criticism of Cases X and XI starts, as I have said, excellently, seizing the essential points, and reaches (Essays, p. 106) the right general conclusion. But, perhaps owing to the slip (already noted) about the year in which dividends are paid, he does not, I think, quite successfully expose what I take to be the heart of the authors' error; namely, the assumption that there is no way in which additional money can ever be used for the payment of dividends.

supposing that "in the ordinary course" of real life industry as a whole is progressively reducing its net indebtedness to the banks, or therefore that in their hypothetical world they have any grounds for representing their integrated corporation as doing so *in the ordinary course*.

IV

I pass on therefore to the chapter (30) in which statistical evidence is adduced in support of the contentions that the chief cause of the failure to make "much progress . . . during the last generation toward higher standards of living for the people generally" lies in "the failure of consumer demand to keep pace with output" (Profits, page 377), and, more precisely, that "every marked recession in business *follows a period* during which goods are piled up beyond the capacity of willing buyers to take them off the markets" (Profits, page 379; *my italics*). The figures and charts presented seem to fall into four groups. In the first group (Profits, pages 379 and 393) it is shown without difficulty that the money incomes both of income-tax payers and of wage-earners rise during trade boom and fall during trade depression. Our authors admit that no certain conclusion as to causal relations can be drawn from this; but they do not seem to notice that, even if it could, the conclusion would not be that which they are seeking to establish. For it is necessary to their thesis that consumers' incomes should be in defect not merely during the depression but during, at any rate, all but the earliest phases of the preceding boom. The second group (Profits, pages 383-390) consists of Mr. Snyder's important demonstration that the variability of *trade* is less than that of *production*; and the variability of *retail* trade, less than that of *wholesale* trade. That is to say, stocks of goods increase during

the trade boom; and Messrs. Foster and Catchings infer that they do so because consumers cannot buy them. But it surely fits in better with what we know of such periods to suppose that they do so partly because of the various congestions which occur when the economic machine is working at full pressure, and partly because traders withhold them from sale in the expectation of still higher prices. Our authors fail to draw any distinction between the *designed* accumulation of goods by *merchants* in time of boom, and the *involuntary* accumulation of goods by *manufacturers* in time of slump.

The third piece of evidence (Profits, page 391) is to the familiar effect that wholesale prices rise faster than retail. Now, it does not follow from the mere existence of this lag that producers and traders will be unable during the boom to sell their products at a profit: for instance, if the lapse of time between the purchase of goods and their re-sale is six months, all will be well for the trader if the retail price-level in December touches the level reached by the wholesale price-level in the preceding June. But it does follow that those who are caught as holders of goods by the turn of the tide will incur loss; and it is, at least, probable that many intermediate transactions — whether in wholesale consumable goods, production goods, securities or real estate — entered into long before that date will in the end prove to be unprofitable. This is indeed one of the most obvious of those monetary aggravations of the trade-cycle whose existence I have earlier admitted. The present laxity of the banks in expanding the money incomes of consumers leads the business world to expect that this laxity will continue, and to enter into intermediate transactions at a price-level which will be justified only if that expectation is fulfilled. Our authors (at any rate in Profits — for by The Road to Plenty they

seem to have somewhat altered their tune) lead us to suppose that they think that the remedy is for the banks to continue indefinitely to expand the money incomes of consumers, in such wise that the intermediate dealers are never disappointed in the prices which they receive. The objection to this course of action is that the more compliant the banks show themselves, the more confident the intermediate dealers will become, and the more inflated the prices at which they will deal; and so the vicious spiral will continue. The commoner and wiser view is that in such circumstances the duty of the banks is not to encourage the intermediate dealers by laxity, but to discourage them by niggardliness, in the creation of money.

The final piece of evidence is an analysis, on lines laid down by Mr. Hastings,¹ of the balance-sheet of a number of corporations, designed to show that over a span of years their financial dispositions were such as to cause a considerable "net deficit in consumer purchasing power." Now, it seems to me true and important that in a country which is rapidly growing in wealth the financial policy of corporations may change in such a manner as to exercise a depressing effect on prices. If corporations take to *hoarding* a large part of their profits in the form of bank balances, they will decrease the velocity of circulation of money (Case VII, Profits, page 281); similarly if, having previously relied on the banks for their extensions of working capital, they take to providing the latter out of their own profits, they may put the banks to some difficulty in finding such outlets for their funds as will both bring money into touch with commodities and be consistent with the principles of sound banking (an indefinite expansion of call loans, for instance, would satisfy neither criterion). In either case

1. In his *Costs and Profits*.

they will be exercising an influence on the side of a fall in the price-level. I have suggested elsewhere² that something of the kind may have been happening in the United States in quite recent years, and may have combined with other causes to make it difficult for the Federal Reserve System to prevent a sagging price-level. But I can find no trace of this process at work in Mr. Hastings' computations for 1920 (Costs and Profits, pages 108-114), which are used in Profits as the model for computations for the period 1913-22. It may be that, through lack of familiarity with the technique of accountancy, I have misunderstood Mr. Hastings' method; but so far as I can see, the main burden of his complaint is that corporations did not in 1920 distribute as cash dividends an increase in the book value of their assets resulting from an increase in the volume and a writing-up of the values of inventories, and from an increase in the debts owing to them. It is hard to see how they could, or why they should, have done so; or how their failure to do so led to a "deficit of purchasing-power" (cf. my note on page 491). It seems clear that the phenomenon here studied by Mr. Hastings has nothing to do with that increased desire to use resources in substitution for bank loans or in accumulation of bank balances whose existence in later years there is some reason for suspecting, and which alone among the possible changes in the financial policy of corporations seems calculated to promote a fall in the price-level.

To sum up. In focussing attention on the subtle interrelations between the supply of money and the phenomena of *saving*, Messrs. Foster and Catchings have hit upon a fruitful theme, and one to which many monetary writers have given inadequate attention. Their failure to achieve convincing results is due, per-

2. Money (1928), p. 175.

haps, to two main causes. In the first place, I can feel little doubt that they were born with a double dose of the inflation-bacillus in their composition; and tho they have done their best to exorcise it with prayer and fasting, so that they are able (Profits, page 364) to look down with a detached pity on such more gravely afflicted sufferers as Major Douglas, yet at critical moments the bacillus is always apt to take charge of the argument. Secondly, the tools with which they work are not sharp enough. In particular, while they see clearly, and deserve much credit for, the distinction between the *general* velocity of circulation of money, and the velocity of its circulation in exchange for the goods which enter into final consumption, yet the true nature of velocity and of the psychological causes which determine it has been hidden from them. In an extraordinarily muddled passage (Profits, page 330) they announce that "if money moves faster in the same channels, the result is a corresponding acceleration of the flow of finished goods to markets, and consumers' income is, therefore, as far short as ever. Other things being equal, doubling either the velocity of money in general or the circuit velocity, doubles the deficiency." That passage could not have been written by anyone who had at his command the powerful weapon, forged originally by Petty and sharpened by Marshall and Pigou — the conception of the *proportion of resources over which people wish to keep command in the form of money* as the ultimate determinant of the velocity of circulation. Lacking this weapon, our authors have had to create their own inadequate equipment — producer's side and consumer's side, alternate use of money in production and consumption, and all the rest of it. In spite of their over-complacent attitude toward the very pertinent thrusts of their critics, they seem to

be anxious to be open-minded, and all their work is instinct with a very evident and disinterested desire for the public good. Is it too much to hope that in the interests of truth they will throw over the whole of their pseudo-scientific apparatus, while continuing, in the interests of humanity, to use their considerable gifts of exposition on the side of wise and practicable policies of reform?

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COÖPERATION AND THE RURAL PROBLEM OF INDIA¹

SUMMARY

Importance of agriculture, — Literacy and sanitation, 501. — Agricultural holdings, 506. — Backwardness of agriculture, 508. — Peasant indebtedness, 510. — Coöperative credit institutions, 514. — Agricultural Department activities, 518. — Further coöperation in agriculture, 520. — Popular education, 522. — Coöperative activities therein, 525. — Public health, 526. — Coöperative activities therein, 528. — Rural Community Councils, 530.

EVERY country which may be described as predominantly agricultural has its rural problem, and the greater the predominance of agriculture over other industries, the simpler in form, tho by no means the easier in solution, does the problem become. Nowhere is this predominance more marked than in India. The population is now estimated at 333,000,000,² of which 78 per cent (258,000,000) is in British India, and the remainder in the native states. No less than 90 per cent of this vast multitude live in villages varying in size from a hamlet of half-a-dozen huts to a close-packed community of 5000 persons, while 73 per cent are directly dependent on agriculture for their living. No more than 10.5 per cent are engaged in industries and 7.5 per cent in the liberal arts and professions; many of these latter also are rural residents, and a large proportion of the industrial workers retain, as so commonly in Belgium,

1. The author of this paper has been in the Indian Civil Service for many years, serving of late as Registrar of Coöperative Societies. He has also taken part in the preparation of the monumental Report of the Royal Commission on Agriculture in India (London, H. M. Stationery Office, 1928; 11s.), to which the reader is referred for information on all phases of the subject. — *Editor*.

2. 319,000,000 in the census of 1921. The decennial increase from 1901 to 1911 was 21,000,000, and from 1911 to 1921 only 4,000,000. More than 12,000,000 lost their lives in the influenza epidemic of 1918-19, and the present annual increase is probably 2,000,000.

their share in the small ancestral farm, and return to agricultural pursuits after a spell of urban life. The percentage of the total population employed in agriculture in certain other countries is shown in Table I.

TABLE I

	Total population in millions	Density per square mile	Agricultural population percentage
India	333	226	73*
United States	113 (1925)	35.5 (1920)	26
Negros	10½ (1920)	...	45 (1910)
Belgium	7½	667	17
Denmark	3½	208	43
France	41	193	41
Germany	63	348	35
Great Britain	44	500	7
Italy	41	340	55
European Russia	112	71	85

* Rural population: India, 90 per cent; U. S. A., 35.5 per cent (1920); U. S. A. Negroes, 72 per cent (1910). The distinction between rural and agricultural population is not always clear in the various national yearbooks: the figure of 85 per cent as agricultural population in Russia is doubtful.

It is clear that only Russia resembles India in respect of rural and agricultural predominance; and that even the American Negroes are 50 per cent more urbanized than East Indian peasants.

Before examining the methods and productiveness of Indian agriculture in detail, we will glance at the degree of literacy of the cultivator and the sanitary conditions in which he lives. According to the census of 1921, 7 per cent of the population over the age of ten years were literate, to the extent of reading and writing a simple letter. The illiterate (93 per cent) numbered 207,000,000, excluding 86,000,000 children under ten. The *literate* section consists of 6.2 per cent of males, and .8 per cent of females. If Christians and Buddhists in Burma (a literate country) be disregarded, the literate males are 5 per cent, and the females .55 per cent of the population. The American census of 1920 showed only 4 per cent of the whites and 23 per cent of the Negroes

over ten years as *illiterate*; and, in view of the backwardness of the Negroes in certain states and of the mixed immigrant population which America yearly admits and educates, no better example for comparison can be found. It follows that the rural problem of India, the problem of raising the economic level of the peasant, is complicated by his inaccessibility to teaching and argument. While the European and the American cultivator can be approached by book, pamphlet, newspaper, or letter, and is able to continue in his own home the study of literature placed in his hands by an expert, the Indian is dependent on oral instruction. The villages and towns having a population of less than 2000 persons are 670,000, and the very great majority of their residents must be personally and orally addressed, and, if possible, convinced, before any improvement — social, hygienic, or economic — can be introduced. Broadcasting in India is in its infancy, and there has as yet been no opportunity of testing its value. The present writer, after many years of intimate rural experience, is confident that it will prove a powerful force for good or evil. The invisibility of the speaker will lend to him that mysterious prestige which is enjoyed in Oriental countries by even the most worthless newspaper writer.

Hygienic rules and practices are almost unknown in the villages. If the lanes and the immediate surroundings of the village site were not defiled, sanitation in the most usual sense would hardly be necessary; no scavengers are more effective than a dry wind and a parching sun. Yet the simplest precautions are neglected. The ground immediately surrounding the village is used as a common latrine. Not only are the peasants' houses (simple — of mud-bricks and thatch with a few beams — but sufficient for the needs of a hot country), crowded and huddled round a maze of narrow and fetid lanes,

swarming with mangy and ownerless dogs and a myriad of flies; but the inside of each little courtyard is also the cattle-shed, where the droppings are swept together in a corner to decay until the next sowing season, while a few feet away the peasant-woman sets up her tiny oven (cooking is ordinarily done outside the house), prepares the meals of the family, and leaves the milk to simmer in an open pot over a fire of dung-cakes. The moulding and patting of these dung-cakes is the daily occupation of herself and her daughters, and the precious food of the crops is diverted, at a great economic loss, to the purposes of fuel. Disease is regarded as the act of fate, vaccination and plague-inoculation are whims of an interfering government, and prophylaxis against malaria is rejected on the plea that a dose of quinine may cause a temporary headache.³ It is beyond the scope of the present argument to discuss child-marriage and the various evils of moral life which have attracted attention in America. If the evils have been over-stressed, they still exist, and the physical weakness which the general sanitary state of the village creates in men, women, and children is aggravated by the influence of misguided customs. It is therefore not surprising that the mortality of India (see Table II) exceeds that of America and every European country.

To turn now to the agricultural question. The size of an agricultural holding will vary within wide limits according to the rainfall or the means of artificial irrigation in each part of the country. The number of landholders is not relevant, since the custom of distributing land in equal shares among the sons of a deceased farmer may reduce nominal holdings to the minutest fraction of an acre. Each such heir will be entered in the Reve-

3. Quinine packets are offered by the government at every rural post-office for half a cent each. The sales are negligible.

nue Record as an owner. The *normal* holding will be from five acres per family in a thickly populated and irrigated region to twenty-five or even fifty acres in a dry tract which enjoys a good crop about once in four years. On such a holding a cultivator can live in the

TABLE II *

	Births per 1000	Deaths per 1000	Infantile mortality
India	33	25	174
United States	22	12	71 (1921)
Negros	27 (1910)	30 (1910)	117 (1910)
Belgium	19	13	94
Denmark	20	11	58
France	19	17	80
Germany	19	12	63
Great Britain	18	12	70
Italy	27	17	71
Russia	45	24	57

* The rates naturally vary from year to year. The writer has given the latest figures available to him. It appears improbable that Russia, with a total mortality exceeding that of all European countries, can boast a lighter infantile mortality than any. The death rate of Negroes in 1910 was obviously abnormal, since they are increasing in number. The Negro census was taken in 1910.

style at present accepted by his peasant brethren as adequate, and it is this type of cultivator whom we have to consider. The *average* holding of several other countries is shown in Table III.

TABLE III

	Average holding in acres	
India	6½	
United States	150	
Negros	47	
Denmark	29	} Excluding holdings of less than one acre
Netherlands	28½	
Great Britain	64	

The area of crops actually sown in all India in 1925-26 was 324,000,000 acres, corresponding to one and a quarter acres per head of the population directly dependent on agriculture. From this it will be evident that the standard of living is low, since the agricultur-

ist, except in the neighborhood of mines and the larger towns, has seldom a subsidiary source of income. Various estimates of his total income have been made, sometimes with an appearance of bias, but a figure of 75 to 100 rupees (\$22.50 to \$30) per head per annum has been put forward by competent statisticians as probably correct for a large part of India.⁴ The cultivator of dry land leads an uncertain and precarious existence; if the rains fail, he must tighten his belt and live on credit until the following year. The lower castes may seek for daily employment on the roads and railways; a few martial tribes are admitted to the army; but the ordinary man resorts to the moneylender and does not question his terms. The possessor of irrigated land is happier, yet even his out-turn will be poor if there is no rain; and, if he depends on a well, both he and his oxen will be exhausted by the unremitting toil needed to save his crop. Out of 324,000,000 acres sown in 1925-26, some 56,000,000 received irrigation (half from canals, half from wells and tanks), and all such land is counted, for revenue purposes, as "secure." It is easy to urge the construction of more canals, and the sinking of more wells, but neither canals nor wells can be made in every kind of land, and if they are unremunerative, the taxpayer must meet the bill. But the taxpayer is himself the peasant, whom it was intended to benefit! Moreover the water-supply is not unlimited, and irrigation is needed chiefly in the winter season, when the great rivers run low for lack of rain.

Another difficulty arises from the custom of subdivision in inheritance, to which reference has been made. Except where an abundance of canal water tends

4. Pre-war estimates of income per head in America and Europe by leading statisticians were: Great Britain (1905), \$206; United States (1903), \$187; France (1909), \$125; Germany (1908), \$104. The Indian estimate is post-war.

to equalize the fertility of the fields, each heir insists on receiving, not only his due share of the total holding, but an equal share in each quality of land. The two acres of high land, the strip beside the torrent bed, and the rich manured patch near the village site must be cut up into exactly even plots for each of the six sons; one of the six then dies, and the other five claim equal scraps of his tiny fields; and so on *ad infinitum*. The result is a ludicrous fragmentation, destructive of sound agriculture, productive of cattle trespass and quarrels (all fields are unfenced), and above all a lamentable waste of well-water, if the jealousies of a dozen petty owners permit the well to be worked at all. To override by law the vicious custom of sub-division is more than any government can venture among an ignorant and suspicious peasantry, unless it is prepared to mow down opposition with machine-guns. The only remedy hitherto found has been the formation, in the military and somewhat more enlightened province of the Punjab, of coöperative societies for the voluntary redistribution of holdings. These small bodies, supplied with official surveyors without charge, have succeeded in re-allotting by consent, in the last few years, the fields of 350 villages (out of 33,000 in that province alone!), and have shown that by tact and persuasion the battle can be won. The time for compulsory legislation, such as has been effective in Western Europe, will come only when education has softened the contentiousness and cleared away the suspicions of rude farmers to whom their little land is all in all. Where voluntary consolidation has been effected, wells are sunk in the new block-holdings, litigation and bloodshed are minimized, new crops are introduced, and more and better work is done. Every man is happier and has more to eat.

We have considered the problem from the standpoints

of the educator and the sanitary reformer, and have referred to the size of the peasant farm, the fragmentation of the fields, and the uncertainty of crops for lack of rain or artificial irrigation. There remain, before we deal with rural remedies, the twin evils of agricultural backwardness and of debt.

The former subject is discussed in the report of the Royal Commission on Agriculture in India, under Lord Linlithgow, which completed its task, after two years of labor, in 1928. The fields of India are unfenced, and cattle trespass in the crops is a daily trouble. The common pastures too are not enclosed, and are invariably overstocked. Epidemic disease is rife, and inoculation, tho slightly gaining in popularity, is only too often deferred until the infection is widely spread. Calves are habitually starved, and cows when not in milk fare little better. Seed for sowing is collected, without sifting, from the threshing floor, or taken from the family bin without examination. The native plough is a V-shaped stick with a point of soft iron, and scratches the upper three inches of the soil. It is driven with one hand, the other being free to carry the goad or the smoking hookah. Sowing with the drill is replacing the broadcast method for food grains, but the latter is still too common among the valuable cotton crops.

European farmers, as in northern France and parts of Scandinavia, who do not fence their fields, tether each animal in a fixed spot from which it can obtain its food without destroying tomorrow's supply. Open pastures in Italy and the hilly regions of England are ordinarily "stinted," if they are not too wide to require any control. European calves are slaughtered or hand-fed, cows rationed and possibly groomed; seed is jealously scrutinized or sent to a testing-station, and deep-furrowing ploughs are in general use. The Indian

peasant, on the other hand, if a Hindu,⁵ is barred by his religion from slaughtering a superfluous calf or an effete cow; the worthless animal is as holy as the strong and productive. If he is a Mohammedan, his religion allows slaughter, but social pride prescribes the maintenance of an excessive herd, and Hindu susceptibilities render slaughter dangerous except in entire secrecy. The consequences are not far to seek. The average yield of wheat or cotton in India and other countries is shown in Table IV.

TABLE IV

	Periods	Bushels per acre	Pounds per acre
		Wheat	Cotton
India	1922-27	12	100
United States	1921-25	13½	174 (1922-27)
Negros	1915	13½	164 (1909)
Belgium	1921-25	39	
Denmark	"	34½	
France	"	21	
Germany	"	27	
Great Britain	"	34½	
Italy	"	18	
Russia	"	9	

It should be borne in mind that the density of the Indian population (see Table I) is from six to seven times that of the United States, but the percentage of rural and agricultural population is higher, and the farm is smaller. In the ordinary course, therefore, we should expect in India, as in Belgium and Denmark, more intensive cultivation and a higher yield.

Overstocking of cattle, open grazing, and the neglect of selective breeding (partly through religious scruples, partly through ignorance) react on the strength of plough-oxen and the abundance of the milk-supply.

5. The census of 1921 returned 217,000,000 Hindus, 69,000,000 Mohammedans, 11,500,000 Buddhists, 4,750,000 Christians, 3,250,000 Sikhs, and the remainder of minor religions, including 10,000,000 "primitives," or Animists. The Hindu figure includes 50,000,000 or 60,000,000 "untouchables."

Table V contains the figures of bovine as compared with the human population and with the cultivated acreage.

	TABLE V Bovines in thousands	Per 100 humans	Per 100 cultivated acres
India	183,000	55	63
Belgium	1,712	22	39
United States	55,700	46	6
Denmark	2,912	83	35
France	14,482	35	17
Germany	17,983	29	23
Great Britain	8,117	18	32
Italy	6,239	15	9
Russia	41,756	37	23

The total number of cattle owned by American Negroes does not appear in the 1910 Census of Negroes.⁶ India possesses more cattle in proportion to cultivated area than any country quoted, and more in proportion to population than any country except Denmark; their value however is inferior. The 1,500,000 milch-kine of Denmark in 1927 gave 4,200,000 tons of milk, or an average of 630 gallons. The kine of the United States in 1924 averaged 438 gallons, and those of Great Britain 411 gallons. No census of milk has been achieved in India, and only estimates are possible. The present writer had charge of a group of milk-recording societies in an area noted for its milch-kine, the Sahiwal or Montgomery breed. It proved necessary to accept for registration every animal yielding 100 gallons in a lactation, and even then the minimum number of animals required by the scheme had not been secured in the first two years. This was in an area selected as favorable. It would be optimistic to assume so high an average as 30 gallons per annum for all the kine actually giving milk in India in any year.

6. The average value of each of the mature cattle on Negro farms in 1910 was \$22, while on white farms it was \$35.

Lastly, to complete our statement of the rural problem, there is debt. Productive debt is no evil. Diminishing debt, even if unproductive, is tolerable. But unproductive debt, which grows by the compounding of interest at 25 or 37½ per cent every six months, which is passed down from father to son, and which the most stringent economy and the most bountiful crops cannot hope to repay, is a calamity and a curse. Yet the normal condition of the Indian cultivator is indebtedness; so normal, indeed, that only special teaching and organization will make him realize that any other condition is possible. It is due to a multitude of causes; bad harvests, cattle-disease, sickness, extravagance, litigation, all have their share. One plea which is often put forward may be safely rejected. The land tax,⁷ at 36 cents on each cultivable, and 50 cents on each cultivated, acre, cannot seriously be treated as a crushing iniquity.

To understand the cause of debt we must take an historical view. Before the establishment of law and order under British rule, there had continued for at least two centuries a period of general insecurity. Population was reduced by war and disease, land was abundant, and rural credit practically impossible. Debts could be collected only with a strong hand, and an importunate creditor might be once for all repaid by the same means. The law was administered in a summary and variable manner, and, where there was no assurance of repayment, few would lend. Under Moghal rule, when order was maintained, the soil belonged to the ruler, and both then and later a debtor had no right in it to pledge.

The British courts, for good or evil, administered the law with regularity, and the rulers granted ownership in the soil to the cultivator or his overlord. Population

7. No income tax is levied on agricultural income.

rapidly increased, and land became valuable. Debts could be recovered, and creditors could not so easily be suppressed. The peasant, finding in his hand this novel source of credit, — his property in land, — pledged it and thought little of the morrow. A horde of money-lenders, formerly confined to the towns, spread over the villages, and found an easy prey. Their function of granting credit had its utility: the peasant was preserved alive in time of famine, and given seed to sow and grain to eat, but at the price of signing bonds which he could not read and selling all his produce to his creditor. The result was a rapid transference of property to the usurer class, which neither cultivated nor improved the land, but rack-rented the former owners as their tenants.

Alarmed at the destruction of the peasantry, the government instituted a system (1883–84) of state loans to cultivators, passed a series (1879–1916) of acts restricting the right of agriculturists to alienate their lands to other castes, and attempted, by the Usurious Loans Act of 1918, to induce the courts to reopen moneylending transactions, and base their decisions on equity. The most efficacious of these measures has been the restriction of the right to alienate, except to another cultivator; violent as has been the outcry against laws of so unusual a nature, they have retained the peasant on his land. They are, however, inadequate in themselves, since he can still borrow so long as the usurer will lend against his cattle, his crops, or his wife's jewelry; and when the mountain of nominal debt at compound interest is sky-high, he must deliver his produce to his creditor, in order to avoid persecution, and must live on a pittance. Insolvency is an art of immense possibilities, which he has hardly begun to learn. When afflicted by debt, a British farmer files a petition in

bankruptcy, a Dane sells out and emigrates, a Frenchman calls on his thrifty relatives to subscribe, an Indian bides in his village and lives on in desolation.

The mere amount of debt is not alarming in itself. The exact figures are not known, a calculation in 1924⁸ led to an estimate of \$2,250,000,000 for India, of which perhaps half is mortgage debt. The American census of 1925 gave a return of \$4,500,000,000 of mortgages, and Mr. A. J. Black in a recent issue of this Journal placed the American total, including a number of short loans which in India would be unsecured, at \$9,000,000,000. Japan in 1922 carried an agricultural debt of only \$450,000,000;⁹ but Italy, with a population of 35,000,000, in 1896 owed \$1,905,000,000,¹ Prussia \$1,880,000,000 in 1902, and Denmark perhaps \$1,100,000,000 in 1924.² India with her great population and area would bear this debt lightly, if it were productive and could be rapidly repaid. But practically none of it has been incurred for improvements or stocking. It represents folly or dire necessity, and the cultivator is enmeshed beyond hope of escape. The creditor does not desire repayment, his object being a steady income and personal respect in the village; and only he, being literate, can understand his accounts. Agricultural progress is obviously impossible in these circumstances, and it may be said boldly that no ordinary (that is, indebted) Indian peasant pays the least attention to offers of better seed, cattle, or methods of cultivation, so long as the entire proceeds fall into the hands of the usurer. He is ignorant and illiterate, enfeebled by disease, and loaded with a debt which he accepts as the gift of fate.

8. See M. L. Darling, *The Punjab Peasant*.

9. See K. Ogata, *Coöperative Movement in Japan*.

1. See E. G. Nourse, *Agricultural Economics*.

2. See C. F. Strickland, *Studies in European Coöperation*.

The Indian peasant thus moves in a vicious circle: he is indebted because he is illiterate, unhealthy, and unprogressive in his agricultural business, and he will make no serious effort toward progress or improvement so long as his higher earnings add nothing to the sum available for his own use. An attack on the circle must be made at all the four points, and we shall explore each of the roads of advance in turn.

Indebtedness is the foundation of the enemy's castle, and on the failure³ of the State-loan system to supply the needs of the small farmers, the experience of other countries was reviewed by the authorities. Various types of agricultural banks were suggested, which were to make advances, with or without a mortgage, to individual cultivators. If summary powers of recovery had been granted, or if the existing debts of the borrowers had been cleared at the expense of the Treasury, private capital for the creation of such a bank would, no doubt, have been forthcoming. The former demand was rejected, however, as likely to lead to political discontent, and the latter as too expensive, since the earlier debts would never have been repaid to the government, while new ones were being eagerly incurred to the bank. The example of the Agricultural Bank of Egypt also provided a warning. This institution, founded by the Egyptian government in 1902, gaily lent to the fellaheen, and after a few years discovered that repayment was less prompt than borrowing. Summary steps were taken, and the money of the bank was called in; but fresh advances to peasants were discontinued after the passing of the Five-feddan law in 1912, which prohibited the seizure of small holdings in execution of a decree. Fortunately for India, the coöpera-

3. The failure was and is due to the inevitable complexity of procedure in borrowing from an official source, and to the alleged tendency of minor officials to retain part of what is to be lent.

tive model of the Raiffeisen societies in Germany was preferred, and the Coöperative Credit Societies Act of 1904, followed by a Coöperative Societies Act in 1912, facilitated the growth of small "village banks." A large agricultural bank, being remote and dealing with individuals, makes no claim on their loyalty; and if they are illiterate and ignorant, and if, further, they have been trained by experience to expect fraud and harsh treatment from all lenders of money, the bank will be regarded as "fair game." Only a society of their own fellowship, imposing a moral obligation upon each villager because it contains the savings of his neighbor and himself, and intelligible because it is before his face and he takes part in its deliberations, can appeal to the heart and the understanding of Oriental peasants. Certainly the appeal has been successful, and the progress was slow in the earlier years, while the peasant watched suspiciously the new trap being laid for him, the expansion is now so swift as sometimes to strain or overstrain the control of its unofficial and official guides.

Table VI shows the capital, the membership, and the number of coöperative societies⁴ in every alternate year since 1910.

TABLE VI

Year	Number of societies	Membership in thousands	Capital in thousands of dollars
1910-11	5,432	308	8,500
1912-13	12,324	536	19,950
1914-15	17,327	789	33,750
1916-17	23,205	1,003	45,875
1918-19	32,439	1,232	64,500
1920-21	47,503	1,753	99,375
1922-23	56,860	2,100	133,275
1924-25	72,801	2,630	181,875
1926-27	89,071	3,422	254,775

4. The figures refer to the British Indian provinces and nine of the major Indian states. Other states have a coöperative system, but in an imperfect form, and are not in a position to supply accurate returns.

A fair estimate for 1928, during which the advance has been vigorously maintained, will be 105,000 societies with over 4,000,000 members and a working capital of \$330,000,000. It is not generally known that the co-operative movement in India has attained this magnitude. The working capital includes 22 per cent of shares and accumulated reserves, 2 per cent of state money (of which a large proportion is in the Indian states), and 42 per cent of deposits. The remainder consists of advances from central or provincial co-operative banks, which collect their funds mainly by deposits from the public. The government in British India assisted the first societies with such loans by way of encouragement, but now finances only experimental types (such as coöperative mortgage banks), with which the depositor is not yet familiar.

The rural credit societies are based on the Raiffeisen principle of unlimited liability, and are managed by their own elected committees of villagers (all of whom are frequently illiterate). Admission and expulsion of members, the issue and recovery of loans, and dealings with the central banks, lie entirely in their hands. In each British province and some Indian states, there is an official Registrar, with a small staff of trained assistants or inspectors, who guide and advise the societies; the inspectors enjoy much influence, but practically no legal powers. The coöperative union of each area pays a large number of non-official supervisors, who remain constantly on tour in the villages, stimulating the managing committees, chiding defaulters, and reporting the condition of each society from time to time. Every society is annually audited by an auditor approved by the Registrar, but many societies are unable to comprehend a detailed audit, and depend for enlightenment on the supervisors. These persons, paid

from a levy which is assessed by the union on the societies, have usually from twenty to fifty societies to advise, and visit them at frequent intervals. It is clear that, if a society contains no literate member, the sums advanced or recovered must be carried in the memory of the committee until the supervisor arrives; but the mind of the peasant is retentive,⁵ and a simple transaction which takes place in the presence of the members' meeting is easily recalled. The rate of interest on loans made to members varies from 9 to 18 per cent, and high tho this may appear, it is lower than the fantastic charges of the usurer. Moreover, it is honestly calculated, and never compounded, even in case of default. The rules provide for compulsory arbitration to deal with every defaulter, and the award is executed by the civil courts as a decree. Every loan requires a personal surety, and real security is not ordinarily taken. Advances are made for seed, oxen, payment of land tax, purchase of domestic necessities, and even for expenditure on marriage and other ceremonies. So keen is the moneylender to entangle a coöperator who is slipping from his grasp, and so weak the character of the borrower on ceremonial occasions, that societies lend strictly moderate sums even for these unproductive purposes, on which custom compels a peasant to spend. He is forbidden to resort to the moneylender for any reason whatever.

The primary societies are affiliated to central banks, 600 in number, which in some cases have also individual members. The directors are elected from these individ-

5. The writer can recollect case after case in which an illiterate man, questioned as to his dealings with the society, has recited every petty loan and repayment for a term of years. Each member has a pass book, but can seldom read it. One president of an illiterate society used to make scratches with a stick on the mud wall of his house, indicating the sums which the supervisor must be asked to enter in the books.

uals, or from the societies' delegates. Advances to societies are made at 8 or 9 per cent, and the rate of interest paid to depositors for a fixed term ranges from 5 to 7 per cent. There is also a provincial bank in most provinces, holding the same position toward the central banks that the latter hold toward the primary societies. The banks have won the confidence of the investing public, and in recent years, despite the rapid formation of new societies, have received more money than they can conveniently employ. A coöperative bank for the whole of India will no doubt be created in the future. The provincial and central banks at present discount their paper with the Imperial Bank of India on commercial terms.

The impression that is being made annually on rural indebtedness by the credit societies cannot be precisely estimated. The less thrifty members undoubtedly resort in secret to the usurer, if their unpunctuality causes their society to refuse further advances. The effect cannot, however, fail to be considerable, and in the province of the Punjab, in which the rural movement is strongest, it has been estimated that about 15 per cent of the loans taken by cultivators for agricultural objects are borrowed from the societies. If the strongest province can boast of only 15 per cent, there is a long road to be traveled before the usurer disappears. In fact, he will never disappear. There will always be persons who prefer gay destruction to dull prudence. But any prudent man who now wishes to escape and will train himself for year after year in punctuality and thrift, knows that he *can* escape; this knowledge alone is light in darkness, and gives him a stiffer backbone than his fathers have had for a century past. In the Punjab the rural debt was estimated at \$280,000,000 in 1924; over \$5,000,000 is being annually

repaid to usurers through the societies; not all of it, to be sure, is old debt.

Another indication of progress is the fact that after a society has been working for ten years, 50 per cent of the members on the average are found to be free from the usurer. The battle is slow, but is being won, and the forces of light are growing every day. There will never be a time when farmers owe no debts, but there will be a time, which some now alive may see, when no Indian peasant will carry an unproductive or excessive burden except through his own fault.

When that day comes, agricultural improvement will make a more lively appeal to his mind. The Agricultural Department in British India is of recent growth, and contains no more than 250 posts, imperial or provincial, which carry a salary of over \$100 per month. The majority of the Indian states are still more backward. The total of the agricultural budget in 1926-27 was \$3,880,000, and represents $1\frac{1}{2}$ cents per cultivated acre, and $1\frac{1}{2}$ cents per head of population, in British India. The agricultural budget of the United States at \$100,000,000⁶ in 1925 represents 11 cents per cultivated acre and 88 cents per head of population. Japan with a population of 59,000,000 spent \$25,000,000 on agriculture in 1927-28, at the rate of 42 cents per head. Tho the Royal Commission on Agriculture in India has now recommended an increase of staff and of expenditure in various directions, the expenditure is limited by the taxable capacity of the country. There is a vicious circle, of a kind not unfamiliar: the ignorance of the people renders them unwilling to bear taxa-

6. The Federal expenditure under the head of Agriculture was \$160,000,000, including \$105,000,000 for roads and \$9,000,000 for forests. These have been deducted, for the purpose of comparison with India, but the expenditure of \$56,000,000 in the various states has been added.

tion which would result in dispelling that ignorance and enhancing their ability to pay!

Despite their exiguous numbers and the difficulty of combining research, college instruction, and field demonstration, the agricultural staff have already secured remarkable results. In 1926-27 nearly 9,000,000 acres (out of a total area, in British provinces only, of 256,000,000 acres) were sown with improved varieties of plants, including 3,600,000 acres of selected cotton and 2,900,000 acres of wheat. The addition to the annual value of the harvest on this acreage is believed to be about \$38,500,000, and the area of improved crops is expanding in each year. Six agricultural and four veterinary colleges, with four research institutes in agriculture and animal husbandry, are actively employed, and agriculture is now taught in a large proportion of the rural secondary schools. It must, however, be admitted that an agricultural degree is desired chiefly as a means of obtaining service under government, and that few of the successful students willingly return to a farmer's life. Critics of coöperation further urge that the agricultural experts have, for the most part, influenced the wealthier landlords or the prosperous farmers in the canal-irrigated tracts, and that the mass of the population, the small and indebted peasants, have not been affected by them in the same degree. It is undoubtedly difficult for an agricultural adviser to spare time for each five-acre man; and, in the hope of assisting this class, the coöperative organizers have formed coöperative seed-farms, which buy in and reissue to their members selected seed of an improved variety, stocking also the simpler kinds of machinery recommended by the Department of Agriculture. They have formed also Better Farming societies, in which the members bind themselves to follow such methods, and

use such machines and seeds, as they themselves in general meeting may resolve to adopt. The by-laws empower the committee of each society to fine a backslider. The agricultural experts can thus afford time to visit and instruct a group of fifty cultivators, who have, by joining the society, shown their desire to learn, and a special staff of advisers has in some cases been appointed for their benefit. The coöperative extension work of the United States offers an obvious parallel to this development, which has begun to yield advantageous results, principally in Bengal, Madras, and the Punjab. The farming societies are, as foreshadowed above, found to establish themselves most strongly in villages in which the credit movement has inspired the peasant, convincing him that by a vigorous and sustained effort he can shake off the yoke of debt.

Similar organization is undertaken by the coöperative cattle-breeding societies of the Punjab (numbering 176 in 1927) and the group of milk-recording societies in the same province. Government dairy farms have registered cows yielding 5000 pounds of milk for the pure Sahiwal breed and 10,000 pounds for the Ayrshire cross; but the cultivator has not imitated them. Here, again, the districts (counties) which have learned the meaning of coöperation by practising it, are the most fertile ground for the teacher of animal husbandry, and most of these societies are in the strongholds of co-operative credit.

The sale of produce is another venture, which is not yet fully proved. The quality of Indian produce is poor, on account of mixture and dirt, and lowers the market-price: the local buyer, moreover, is not always scrupulous or solvent. Sale societies, principally for cotton and wheat, exist in many parts of the country, and are effective in protecting the producer against rings and

frauds. They have not yet devised means of ensuring the solvency of the buyer, or guaranteeing the purity of the produce. The business also depends to an undue extent on the patronage of non-members. The most notable achievement is that of the Producers' Milk Union of Calcutta and its 82 affiliated rural societies, which appear to have solved for that great center the riddle of a clean milk-supply at a moderate price. Much of the urban mortality of India is due to the condition of the milk, the treatment of which is indescribably filthy. Infant coöperative dairies in other cities are struggling for existence.

The point to be emphasized is that, except in so far as the more substantial farmers have accepted new plant-varieties from the agricultural stations, progress among the rural population has been willing and considerable only where the coöperative agency has been used. Agricultural experts have offered their services and their advice with comparatively little effect to the small peasant cultivating ten or twenty acres. The small man is distrustful, often stupid; the expert does not speak his Doric dialect, sometimes not even his language. In any case, his ways of thought, even if he be Indian, are alien to the rustic mind, which must be approached in a form, and addressed in an accent, which it recognizes as familiar. *Omne ignotum pro horridifico* is the motto of the illiterate Oriental, so long, at least, as he is isolated; but when he sits down with groups of his brethren and discusses a matter of intimate interest with one who is thoroly trained in dealing with him and sympathizes with his doubts and objections, he loses his fear, becomes docile, cordial, almost radical. No agency other than the coöperative can lead forward the small Indian cultivator to agricultural improvement.

The process which we have been describing is in its essence a process of education. Reference has already been made, not only to the prevailing illiteracy, but also to the limited outlook and lack of enterprise of the indebted villager. The removal of illiteracy is the first, tho by no means the only, step toward the diffusion of knowledge. Comment has often been made in the past on the alleged tendency of the Indian government to use education for training competent clerks rather than intelligent citizens. Whatever the past policy may have been, primary, and above all rural, instruction is now the theme of all educators. Sixteen⁷ universities, 290 colleges, 20,000 secondary and special, and 218,000 primary schools were in 1926 teaching 10,500,000 pupils, of whom 1,600,000 were girls. About 600,000 of the latter were reading in boys' schools. The ordinary primary course is of four years, from the age of six to ten; but the percentage of wastage is deplorable, as shown in Table VII.

TABLE VII

	Total number of pupils	Wastage			
		Class I to II	Class II to III	Class III to IV	Class IV to V
1924-25	9,800,000	2,433,000	321,000	259,000	282,000
1925-26	10,500,000	2,666,000	280,000	242,000	251,000

In other words, 3,500,000 pupils out of 10,500,000 — one third of the total attendance — drift away from the schools and are lost. Moreover, the figures above take no account of retardation, and a child who spends four or five years in the lowest class is not represented in the percentage of "wastage." Both these evils are graver in the villages than in the towns. As in many countries, and in Italy in particular, the rural schools fail to at-

7. The returns apply only to British India, with a population of 258,000,000. Indian states tend to be comparatively backward.

tract the ablest teachers, and the single-teacher schools, tho diminishing in number, have not yet disappeared. Migration of landless tenants and laborers is frequent, and a child, after a move to a new farm, may find itself remote from a school. Again, the indebted peasant feels no impulse to educate his child; only exceptional ability, which will carry him up to the examination for a government post, will release him from bondage to his creditor. The total expenditure, including direction and higher education, amounted in 1926 to \$87,500,000, or \$8.33 per head; but it is clear from the wastage and retardation that the cost per literate pupil is considerably higher.

The difficulties are very great, and the high percentage of failures should not be attributed to official indifference. More schools and teachers involve more taxation, for which in his present condition the taxpayer is not ready. The parents will resent compulsion, if hastily applied, and the resentment of several hundred millions, even tho misguided, cannot be ignored. A cautious advance toward compulsion is being made, and every province except Burma, which is Buddhist and largely literate, has now a Primary Education Act, under which compulsion can be applied in selected areas. The consent of the residents is usually obtained beforehand by vote, and, even after application of the act, the penalties for non-attendance are sparingly enforced. Only three of the acts in question extend to girls, and in their case an experiment is being tenderly tried in a few urban wards. As regards boys, 100 municipal and 500 rural areas have introduced compulsion, the rural areas being almost entirely in the Punjab, where the European war exercised a powerful influence on the military peasantry of the countryside. The demand in this province appears to be real and increasing,

but the utmost that can be said is that educators are conscious of the urgency of the question and will travel forward as fast as they can drag the people. The load of debt retards their pace.

The constitutional reforms, which date from 1919 (the Simon Commission is now touring in India to devise a second installment), have intensified the need of an intelligent electorate. It is no longer safe to defer the spread of literacy until the children of today become adults. The present adult must be attacked, and in recent years a marked advance on these lines has been secured. In addition to 8000 schools in Madras, Bengal, and Bihar, which admit adults and juveniles to instruction side by side, and for which no accurate details are forthcoming, 3200 schools in the Punjab and 200 in other provinces teach adults only, the number of pupils being about 100,000. A willing adult achieves literacy in six or seven months, reading for two hours in the evenings; and the school then frequently moves to another center. The output of literates is therefore larger than the roll of 100,000 might suggest. It is, on the other hand, permanent only if provision for subsequent use of the new talent is made; and the Rural Community Board in the Punjab, with affiliated Community Councils in each county or district, maintains vernacular⁸ libraries in the secondary rural schools, where adults are encouraged to attend and continue their reading under the general guidance of a schoolmaster. We shall return to the subject of these Community Councils. Meanwhile, the importance of educating the electorate will not be contested. The voters are at present 7,400,000, out of an adult population in British India of about 144,000,000. An extension of the fran-

8. It is advisable to explain that the literacy under discussion is vernacular literacy, in Hindustani, Bengali, Tamil, etc.

chise in 1929, after the report of the Simon Commission, is highly probable, and the placing of power in the hands of ignorant and inflammable persons cannot be contemplated with equanimity.

The coöperative organization has taken a curious part in the campaign of education. Subsidies given by coöperative banks and unions to schools, or individual students, are a common feature of the movement in England and other countries, and are found in various provinces of India. The Punjab is, however, again the pioneer of two novel institutions, the coöperative adult school and the coöperative society for the compulsory education of juveniles. The first adult schools of the province were actually coöperative, and 200 of these small bodies survived in 1927, when the 3200 adult schools of the Education Department rendered them almost an anachronism. The members pledge themselves to complete the six months' course and to be regular in attendance. There is seldom a penalty for absence, and the value of the society consists only in the mutual example and pledge. They are also able to function, with voluntary teachers, in the remoter villages where no trained master exists.

Still more singular are the compulsory societies, formed by groups of parents in villages to which the Primary Education Act has not yet been applied. Members pledge themselves to send their boys (occasionally also their girls) of appropriate age to the school for four years, or up to the age of ten, and a substantial fine can be inflicted, and often is, by vote of the managing committee, on a parent whose child is absent without cause. Such societies in 1927 numbered 158, with 7000 parent-members, and the growth of the idea is steady. The ultimate end of the societies is extinction by success, since their object is attained

when the example of the voluntary members induces the entire village to demand the application of the act. Several have thus been happily merged in a wider activity. The societies are separately registered, and are not merely branches of a credit or other coöperative institution. In view of the wastage and retardation in Indian schools, it is desirable to ensure the full and effective use of those which exist rather than to multiply their number, and this is the principal aim of the (voluntary) societies of compulsory education.

Public health is the last point of attack on the rural problem. The death-rate for India, as shown in Table II, is about 25 per thousand in a normal year, with an infantile mortality of 174 (1925). The urban death-rate was 29 per thousand, as against a rural rate of 24, and infantile deaths in certain towns have occasionally been recorded as exceeding 100 per cent! The predominant cause of death is fevers, which account for 15,000 or 16,000 in a normal year, malaria surpassing all other Indian fevers in its wide distribution and its destructiveness. Cholera, plague, smallpox, and hookworm are also epidemic and endemic. Maternal mortality is often from 50 to 100 per thousand, and the methods of the untrained rural midwife can be detailed only to a medical audience. No form of neglect is so general, no obstinacy so rigid, as that of the peasant (and his wife) in matters of hygiene. Hospitals exist, and in the cities are well staffed; in the villages the same class of doctor cannot be posted by the government, since there is little demand for paid private attendance in the country, and the available resources do not admit of a salary which will attract first-class men from the medical colleges. Yet the peasants only too often abstain from bringing a patient to hospital until he is past hope, and prefer the unqualified quacks who vend simples or charms in

the village. The doctors of the Public Health Service, therefore, reinforced by the sanitary engineers, tour the countryside, occupied in instruction, and in vaccination and inoculation of various kinds. Compulsory segregation was enforced, despite popular hostility, in the early days of plague; but all compulsion has now been abandoned, and the writer has himself found a youth with a galaxy of smallpox over his face, sitting at his feet in a village meeting, and no villager for a moment contemplated his removal. Persuasion through the headmen may be forcible enough to procure the vaccination of a whole village, when an outbreak has begun; but earlier prevention is unwelcome. The only remedy appears to be constant and patient teaching. Undue pressure will, and does, provoke riots. In addition to vaccination and inoculation, Public Health officers endeavor to suppress the breeding-places of the mosquito, procure the erection of parapets round wells which are worked by cattle (to avoid pollution of the water by droppings), destroy rats for fear of plague, and lecture on the health of women and children. Maternity centers are now maintained in many towns, and "Baby Weeks" — an affliction from the gods! — are organized with useful effect in all counties. Unfortunately it may prove necessary, on social or communal grounds, to award prizes to the infant which is not really the best, or to every infant present. The Indian police are efficient and brave, but have never faced a riot of mothers.

It cannot but be that an impression is being made, tho the signs of improvement are seldom visible outside a narrow circle of personal influence. While it would not be fair to allege that the peasant and his wife are content to suffer constant sickness, if not permanent enfeeblement, because they are hopelessly indebted, it

is undeniable that (1) the hopeless debtor does not realize the economic loss of time and labor which ill-health causes him, because the loss is not his but that of his creditor; and (2) the hopelessness of debt wears out his courage, leaving him too indifferent and spiritless to take any vigorous steps for his own betterment. Experience convincingly shows in India, and everywhere else in the world, that the prosperous man, or he who aims at prosperity and hopes to attain it, sets a value on his own health and that of his family, not only as an economic asset, but because life itself means something to him and is not merely one of a thousand successive reincarnations (Hindu), or a plaything of fate (Mohammedan) which he cannot control.

In two ways the coöperative movement has joined directly in the struggle. In Bengal, which enjoys a death-rate of 28, an infantile mortality of 179, and a malarial death-rate of over 11 per 1000, there are 1000 Coöperative Anti-malaria societies, the majority of which are affiliated with an Anti-Malaria Union in Calcutta. Their business is to drain swamps and superfluous ponds, sink tube wells, inculcate the use of quinine, and assist in the treatment of sick persons. Other diseases, also, such as cholera and *kala-azar*, fall within their scope, and the honorary enterprises are less stable and continuous than those on a paid basis, and some of the societies are inactive, a large number are alive and strenuous and give evidence of a new spirit of self-help, even in this depressed and landlord-ridden province, which augurs well for the future. The Bengal government recognizes their merits by a substantial grant in aid.

Somewhat wider in scope, tho similar in intention, are the Coöperative Better Living societies of the Punjab. Just as the coöperative societies of education, of

better farming, and of arbitration ⁹ bind their members to observe certain rules, so the Better Living societies pledge them to discuss in general meeting the moral and sanitary improvement of the village, and obey the decision that may be reached, under penalty of a fine. There is already a general but unfocussed desire for restriction of extravagant expenditure on social ceremonies, and for the abandonment of immoral customs. Tho the demand for hygienic and sanitary changes is less keen, the coöperative organizers incite the societies, where possible, to consider also questions of this description, and resolutions concerning vaccination, inoculation, malaria prophylaxis, and care of children, have been passed. Their enforcement is intermittent, and will depend on a general rise in the standard of living, of intelligence, and of personal pride.

The rural problem of India has thus been discussed at some length, as it presents itself to one who has spent many years in the villages, and who entertains warm feelings of good-will toward the peasants, with a real desire for their progress toward happiness and self-government. The steps being taken to solve the problem have been examined, with particular emphasis upon the coöperative agency. The peasant will strive for his own improvement, when the benefits accrue to him, and not before; he must first, therefore, be freed from debt, by methods which call for his own activity and do not demoralize his character. But the rural problem must be visualized as a whole, and, as pointed

9. The villager is litigious and deplores his own weakness. A few years ago he welcomed the formation of coöperative arbitration societies, which bound him to refer all civil disputes to a panel of arbitrators chosen by his society. A legal defect led to the closure of the societies, but they were revived on a sounder footing in 1925, and now settle quarrels with regard to women, cattle and crops, trespass, etc.

out by the Royal Commission on Agriculture, there must be a coördinated approach from several directions.

We have considered the attempts to develop better systems of education, of agriculture, and of public health. There is, however, a new organization of a semi-official nature, recently set up in the Punjab for this very purpose. The Rural Community Board acts as the central organ of the Rural Community Councils in the districts, and guides them in promoting schemes and coördinating agencies for the betterment of rural life, and the "uplift" of the villager in every way. All classes of education, public health, agricultural and veterinary improvement, and coöperative action are encouraged by the Councils and are represented on them. Where a Council acquires vitality, its assistance to official and unofficial workers is of the highest importance, and the latter find their labors to be effective when they remain in close touch with it. The Rural Community Council of Gurgaon district, adjacent to Delhi, has by its "uplift" campaign won a reputation extending beyond the limits of India. Novel schools of rural economy and of domestic science are there giving the young of both sexes a new outlook on life, and trained "village guides," posted to rural centers, serve as intermediaries between the experts (always alarming to the rustic mind) and the hesitant villagers. Dung-heaps have been expelled from courtyards, babies are washed and weighed, mothers attended, girls taught in the boys' schools, agricultural methods improved, and debt shaken off by credit societies. The "clod-hopper" is rapidly becoming a new man. It remains to prove whether he will live up to his new ideals, and whether the same reformation can be carried out in other districts and other provinces. Talking — or

legislation — alone will not suffice, and the Indian politician, however genuinely patriotic, tends to be satisfied when he has passed a new law.¹ The life of the peasant can be reformed only in the village, and much will depend on his capacity to lift himself out of the slough. Ultimately no government or philanthropist can do it for him, tho their help, financial and educative, is essential as a condition. The problem is complicated, as we have seen. The peasant is burdened and low. Yet he is not helpless if he will strive, and there are signs of a new effort toward the light.

1. For instance, a law raising the age of consent for marriage. Indian girls are frequently married before, and normally at the time of, puberty. Consummation is not long, if at all delayed. Puberty is normal at about ten years. The legislature is hotly debating a law raising the age of consent to sixteen or higher. It simply cannot be enforced. Who is to give evidence of breach?

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LONDON

REVIEW

RECENT BOOKS ON THE AGRICULTURAL SITUATION ¹

For eight years the American public has been continuously reminded that something serious is wrong with farming and the farmer. Like industry and commerce, agriculture was profoundly shaken by a severe crisis in 1920-21, when the catastrophic decline in prices occurred. Unlike most branches of industry and trade, most lines of agriculture have been slow in regaining financial equilibrium, to say nothing of prosperity. Views differ greatly as to the degree of depression that persists today, but there is substantial agreement that, after years of painful readjustment, farmers in general are still, in one sense or another, "below par" financially, and that the outlook is not satisfying. More radical are the differences in diagnosis of causes and prescription of remedies. Thus far the problems have proved too vast, too complex

1. *The Condition of Agriculture in the United States and Measures for Its Improvement: A Report by the Business Men's Commission on Agriculture.* Published jointly by the National Industrial Conference Board, Inc., of New York City and the Chamber of Commerce of the United States of America, Washington, D. C., 1927.

Farm Relief: A Brief on the McNary-Haugen Plan. By James E. Boyle, Professor of Rural Economy, New York State College of Agriculture, Cornell University. New York: Doubleday, Doran and Company, Inc., 1928.

What the Farmer Needs. By Isaac Lippincott, Professor of Economic Resources in Washington University. New York and London: D. Appleton and Company, 1928.

Harvey Baum: A Study of the Agricultural Revolution. By Edward Sherwood Mead, Professor of Finance in the University of Pennsylvania and Bernhard Ostrolenk, Director of the National Farm School, Doylestown, Pennsylvania, 1918-1927. Philadelphia: University of Pennsylvania and London: Humphrey Milford (Oxford University Press), 1928.

The Economics of Farm Relief: A Survey of the Agricultural Problem. By Edwin R. A. Seligman, McVickar Professor of Political Economy in Columbia University. New York: Columbia University Press, 1929.

for those who have addressed themselves to the task of analyzing the situation and solving the problems. Increasing quantities of detailed information, unequal in reliability and significance, are available. Valuable contributions have been made on particular phases of the subject. What we have lacked is a keen, well-balanced analysis of the whole problem, resting upon a grasp of fundamentals and a mastery of details, and persuasively outlining a practical, adequate, and acceptable policy for the nation to adopt. None of the books here reviewed fully measures up to this high standard, but one or two approach it.

The subject has been chiefly discussed by those who, as farmers, farmer spokesmen, or students of agriculture, are closest to the problem and naturally take the farmer's point of view, or by legislators who have used and misused the contributions of these others. Increasingly, however, the subject is commanding consideration also by men who are not immersed in it, and who, unhampered by legislative duties and unbiased by political considerations, can bring to bear a different if not a larger perspective and a different, perhaps broader experience which partially make up for limitations of direct familiarity with its various phases.

The books here under review are the work of men of this class. It is not surprising that none of them represents the left wing of opinion. Rather they represent a range from the highly conservative positions taken by Mead and Ostrolenk, and Lippincott, to the notably sympathetic and conservatively progressive positions taken by Seligman and the Business Men's Commission. The McNary-Haugen plan is rejected by all: reluctantly by Seligman, more positively by the Business Men's Commission, with vehemence by the others. None of the books gives a high place (if any) in its program to higher agricultural tariffs, extension of coöperative marketing, reductions in merchandising costs, and price-raising measures of various sorts. Naturally the treatments are in varying degrees unacceptable to leaders and rank and file in the movement for farm relief. Even the best is subject to numerous criticisms in matters of detail. Yet each makes

some contribution to the understanding of the intricate problem, and deserves a reading by farmers, farmer spokesmen, and others who are concerned with "farm relief" and the progress of American agriculture.

Harvey Baum is not in the main, as its subtitle would indicate, "a study of the agricultural revolution." It is rather a brief, interesting, incisive, provocative, and pessimistic discussion of what is wrong with the farmer, why it is so, and what should *not* be done about it. Of its two authors, Mead is an eastern economist who has owned and operated a farm in Eastern Pennsylvania, and his colleague Ostrolenk for ten years headed a practical farm school in the same region. They paint the blackest picture — unquestionably too black a picture — of the plight of the American farmer. They interpret it as simply the inevitable consequence of the average farmer's "blazing inefficiency" and of his disastrous competition with "business farmers," in a period of revolutionary changes in farming methods. They see no hope for improvement except as the eventual outcome of a prolonged and painful process by which the inefficient will be in large part eliminated and in part raised to a higher standard of efficiency, and the number of farmers and the amount of farm land greatly reduced. Farm relief, in their view, would injure, not aid, and retard progress, not promote it. Paradoxically, even scientific agriculture is regarded as "the salvation of the individual but the ruin of the mass" (page 96). The book is narrow in viewpoint, and well sprinkled with exaggerations, misinterpretations, and misstatements; but there is more truth in many of its points than most writers are willing to admit. The authors are unquestionably right in saying (page 148) that whatever is done by way of farm relief "should be in harmony with the inevitable trend of the tide, rather than an attempt to hold it back."

Lippincott's book is much milder, more optimistic, even unduly complacent, but in certain respects written from a broadly similar viewpoint. A student of economic resources and economic history, the author writes with a better historical perspective, but makes strangely little reference to, or use

of, the best and latest materials and discussions on the agricultural situation. He finds that "farming in America has always presented serious problems," and that the surplus problem is neither new nor peculiarly aggravated today. (Pages 17, 18.) He rightly calls attention to the progress that agriculture and the farmer have made and are making, but unduly minimizes the severity of the post-war agricultural depression. He denies that "agriculture has been the worst sufferer during the recent period of readjustment," or that distress has been general among farmers. (Pages 20, 21.) Even more than Mead and Ostrolenk, he properly stresses the great diversity in costs among different farmers. "Agriculture," he says in his preface, "is undergoing a revolution, and all industrial revolutions are painful to the men who do not keep up with progress. Here is the secret of present agricultural distress where it exists." Those who have been hard hit are the legion of high-cost producers.

The remedies commonly proposed Lippincott regards as either futile or dangerous to farmers themselves. Government subventions are defensible, if at all, only for certain types of research and for dissemination of new knowledge. "What the Farmer Needs" is simply to apply the fundamental principles of good management as the progressive manufacturer does: to improve his productive efficiency, eliminate enormous wastes of material and labor, develop valuable by-products — thereby lowering his costs and increasing and stabilizing his income — and build up reserves when times are good. Lippincott ignores marketing problems almost completely, and fails to take account of the comparative inelasticity and limited expansibility of demand for many farm products, as compared to potential increases in output — a point which Mead and Ostrolenk rightly stress.

Boyle's *Farm Relief* is mainly, as its subtitle indicates, "A Brief on the McNary-Haugen Plan." It is easy to read, but gives the impression of having been too easily written. The author has written much in defence of the established grain-marketing system. The brief is naturally for the plaintiff, against the surplus control bill passed and vetoed in 1927.

Affirming that farm relief is needed, he finds the McNary-Haugen remedy the wrong one on every count. "When this plan is analyzed, it is found to be based on a false understanding of the farm-relief problem and to contain serious and fatal defects" (page iii). Boyle broadly diagnoses the causes of distress as "anarchy" in three forms: "lack of orderly development" of agriculture, "rapid over-expansion . . . followed by a painful readjustment"; lack of orderly and balanced production; and disorderly marketing of perishables. To correct these disorders he urges a national agricultural policy to be carried out by the coöperation of national, state, and local agencies, public and private, under the leadership of a farm board to be composed of representative experts, with a farm congress to counsel with the board.

Seligman's *Economics of Farm Relief* justifies its subtitle, "A Survey of the Agricultural Problem." It was written at the request of the chairman of the Democratic National Committee, completed shortly before the recent election, "after ten weeks of intensive work," and published early in 1929. Lacking initial familiarity with the subject, the author performed a prodigious feat in working through the official documents, consulting the literature of the subject, and getting aid from many specialists. With a facility born of wide knowledge and long experience, he makes a broad appraisal of the agricultural situation and possible measures for its improvement. The result is remarkably good, considering the limitations under which it was written, but it is not surprising that the work lacks the strength, depth, and precision that come only with mature investigation.

Seligman surveys the evolution of agriculture and the progress of the farmer in the light of general development; analyzes the economic characteristics of agriculture, with special reference to costs and price conditions; outlines the multifarious agricultural problems, international and domestic; and discusses the possible agencies and modes of improvement. Finding abundant need for farm relief, he outlines a broad program of many components: international coöperation for preservation of peace, for promoting economic

recovery and advance, and for stabilizing the general level of prices; limited regulation of speculation; reduction of railway rates even with the aid of subsidies; further extension of credit facilities — notably including renewals of existing mortgages at lower rates even at government expense; readjustment of public expenditures and tax systems to lighten the farmers' tax burden; and extension of research, informational, and advisory functions on behalf of the farmer.

In particular, Seligman finds a multitude of functions for a federal farm board, to be vested with broad powers. It should be *par excellence* the farmers' spokesman in high places. It should establish model farms and farm communities. It should coördinate our land policies, classify land, and buy up submarginal land on a large scale. It should make "calamity insurance" generally available. Its major function should be to work toward a stabilization of farm prices, in which he believes that much can be achieved through improvements in marketing, aid to coöperatives, and experiment with control of marketing. But he concludes that powers "to raise prices must be utilized with extreme circumspection," and best "reserved for periods of striking or undue depression of prices where threatening conditions might call for heroic remedy." Seligman's program agrees at many points with that of the Commission (next to be considered). In most instances where it differs from the latter, the suggestions are not, in the reviewer's opinion, maturely considered.

The Business Men's Commission on Agriculture was appointed and financed by the National Industrial Conference Board and the Chamber of Commerce of the United States, both of which had previously made extended studies of the agricultural situation. Their aid, and the assistance of Professor Graham of Princeton as economic adviser, were enlisted by the Commission. It included men of outstanding ability, who approached their task in admirable spirit and devoted to it valuable time and energy. At hearings in various parts of the country, from New York to Atlanta and from Minneapolis to Dallas, Texas, they listened to 170 wit-

nesses from all over the country, including farmers of many different viewpoints. Their report on *The Condition of Agriculture in the United States and Measures for its Improvement*, if somewhat ponderous like its title, remains the most comprehensive, best balanced, and most significant of the books under review, as it was the earliest to appear.

The Commission's own summary of conclusions and recommendations covers 21 closely printed pages, and is difficult to condense. The analysis of the condition of agriculture is distinctly valuable, but excessively gloomy even though couched in less extravagant language than Mead and Ostrolenk use. The survey of "the present status and trends of agricultural conditions" (Chapter I) from the past through the present to the future, leads to sombre conclusions: agriculture has not only undergone "a prolonged and trying readjustment to post-war conditions" (page 20), of which the worst phases are largely past (page 26), but is subject to "deep-lying forces which over a long period of time have tended persistently to depress the relative economic position of the farmer" (page 26) and to "certain deep-lying ills which time alone cannot safely be relied upon to cure but may even accentuate" (page 27). "Agriculture is . . . affected with a clear and unquestionable public interest, and its status is a matter of [fundamental] national concern calling for deliberate and far-sighted national policies, not only to conserve the natural and human resources involved in it, but to provide for the national security, promote a well-rounded prosperity, and secure social and political stability" (page 20).

The "review of the factors making for agricultural depression" (Chapter II) is lengthy, and even too-inclusive and over dark, tho somewhat relieved by due recognition of encouraging elements mentioned in Chapter III. Unfortunately little attempt is made to appraise the relative importance of the various factors, and little stress is laid upon degrees of inefficiency among farmers, which Lippincott and Mead and Ostrolenk regard as basic. The Commission admits some lack of confidence in its own interpretation, and wisely urges the

need of intensive studies of agricultural trends and tendencies (page 130). It rightly emphasizes the problem "of the place which agriculture is to occupy in the nation's future economy . . ." (page 153), but makes little progress with the elusive concepts of the balance between agriculture and industry and the "fair share" of agriculture in the national income. Unlike Seligman, Mead and Ostrolenk, and the present reviewer, it does not regard the "relative shrinkage of agriculture" as inevitable, and fails to recognize that such shrinkage may be entirely consistent with, if not a condition of, a greatly improved agriculture and a much higher status for the new generation of farmers.

The Commission's recommendations are summarized on pages 30-40, and discussed at length in Chapters IV-XII. They call for careful reconsideration of protective policies which create artificial obstacles to normal extension of markets for farm products and make for higher costs of production on the farm.¹ They urge certain measures to facilitate sound extensions of markets, to reduce wide fluctuations in prices, and to lessen hazards of loss due to changing natural and market conditions. But "the main means of improvement of the economic position of the farmer must be sought in measures which reduce cost of production," by individual and coöperative action, with government help. The importance of "a carefully planned policy for the utilization of the land" is emphasized. Enlargement and coördination of research and extension efforts are strongly urged. Redistribution of the tax burdens to lighten the farmer's share, improvement of the agricultural credit system, readjustment of railway rates, waterway developments, and certain measures to reduce costs of distribution are given place.

As additional agencies to aid in carrying out these policies, the Commission recommends the creation of a small federal farm board; the experimental organization of two or three "stabilization corporations" with capital provided by farm organizations, private business interests, and the federal gov-

1. The tariff passages of the report are highly significant when recognized as the work of a "Business Men's Commission."

ernment; and an endowed National Agricultural Foundation to carry on "a variety of activities which cannot well be undertaken by the Federal government or by organizations of farmers." In the reviewer's opinion, these proposals are in the main soundly conceived, not only in their broad outlines but in most of their components; and constitute as a whole an outstanding formulation of a policy calculated not simply to rehabilitate agriculture or relieve present farmers, but to promote the progress of farming as an industry and of farmers as a class.

Limits of space restrain the reviewer from analyzing the works in detail, and make possible only a few concluding observations.

It is regrettable, but not surprising, that none of the books makes thoroughgoing, effective use of available statistical material, even tho, as the Commission asserts (page 17), statistics give no conclusive answer to many important questions. The Commission's report stands highest in this respect, and its data are generally interpreted with commendable discrimination and common sense, and with due recognition of their shortcomings. In general, too few data are used, or defects appear in selection, presentation, and interpretation. A few examples may be cited. Mead and Ostrolenk derive their extreme view of the farmer's plight from an uncritical use of official estimates of agricultural income, and uncritical comparisons of the farmer's dollar income with urban incomes. Lippincott carelessly uses, as evidence of the number of farmers with little farm experience, a census table relating to a very different matter — the number of years owners and tenants had operated the farms they occupied in 1920 (pages 132, 133). Boyle presents several charts (pages 187-193), to support his point that the existing marketing system is orderly; but in the first he chooses a year in which corn prices were exceptionally stable, in the second the scale chosen for prices minimizes the cotton price variations, and in two others the price scales are inverted. Many of Seligman's statements, in his introduction and elsewhere, contain avoidable elements of error even when expressed so guardedly

as to be partially true. The Commission too goes astray. The computed *trends* of prices of agricultural and non-agricultural prices, 1914-26, in relation to the current general price level (page 50), tho probably mathematically accurate are none the less misleading. Either statistics or the lack of statistics appear to have misled the Commission into believing, for example, "that real as well as money costs in the industry are rising," "that the quality of the farm population is undergoing a progressive deterioration" (page 27), and that the cattle industry has latterly suffered "from the declining per capita consumption of beef cattle in the United States and from the expansion in the number of dairy cattle" (page 70).

Seligman, Lippincott, and the Commission all venture upon some discussion of the historical background of the present agricultural situation, none with outstanding success. Lippincott's presentation, tho quite deficient especially on the developments of recent years, appears least in error in this matter. Seligman's review of the period since 1900 is generally good, but he views with unwarranted complacency the course of our agricultural history up to the recent past. It is too good to be true that while other lines of industry grew at a faster pace, agriculture pursued "its steady course" and "preserved its balance" (page 33); that "our national policy up to the War offered a rather even-handed and well-balanced development of all our great economic activities" (page 33); that "in the main and notwithstanding occasional interruptions, agriculture and industry prospered together," and the balance between them was "almost automatically preserved" (page 34). He is on surer ground in making the pertinent observation (page 14) that "Taking it all in all, the American farmer — at least the typical white farmer — is perhaps the most prosperous representative of the tiller of the soil that has yet been disclosed by history." If his view of our history is right, Seligman's fears of the results of a policy of drift seem exaggerated. The Commission, on the other hand, essentially shares with the National Industrial Conference Board the ill-founded conviction that

there has been a progressive deterioration in the position of agriculture of much longer standing, partly because "Agriculture was left largely to the mercy of *laissez faire*, while governmental support went to the building up of commercial and industrial enterprises" (page 7).

The doctrines that "agriculture is fundamental" and that farmers are in a special sense the foundation of our national life, are evidently shared by three of the authors. Mead and Ostrolenk are most emphatic: "Agriculture is the greatest, the most important, the most essential of all industries" (page 20) "whose product is vitally necessary" and "with whose operations the public welfare is most vitally concerned" (page 21). "Here is the leading American industry, largest in capital invested, in value of product, in importance to the general welfare; an industry recognized as the foundation of all other industries; which feeds and clothes the nation; which supplies a large number of essential raw materials, without whose orderly and continuous functioning our national life would be impossible . . ." (page 19). "On the farms of the United States is a group of workers, admittedly the most important in the country . . ." (page 22). To Seligman, the farmer "has been in large measure the sheet anchor of our national progress" and "is a leading example in the modern world of the independent, self respecting, intelligent and upright citizen" (pages 36, 37). The Commission says: "His is a proud heritage, last bulwark of true democracy . . . it is for him to . . . preserve the ideal of American manhood and womanhood" (page 18).

With all due respect to the farmer, to agriculture, and to these writers, such language is needlessly extravagant. In modern societies, mining, manufacturing, transport, financial, and other industries and groups of workers are vitally essential. Attempts to accord broad priorities are futile. Within other fields as well as agriculture there are indispensable and dispensable industries. Moreover, there is no point in considering the elimination of any of these groups as a whole; the real question concerns the size and quality of the personnel needed. Salt miners and salt-makers are not

all indispensable because some salt is essential to life. The economist, familiar with marginal concepts, should be the last to fall into the error of magnifying the importance of an entire group merely because its complete elimination would be disastrous. If historical trends afford any criteria, and if there is any truth in Mead and Ostrolenk's view of farmer inefficiency, the nation's fate is sealed if we must rely primarily upon the farmers to maintain and advance our cherished national standards. Surely there is ample basis for arousing public opinion to deal with agricultural problems without making invidious and indefensible comparisons.

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NOTES AND DISCUSSIONS

THE RELATION BETWEEN NORMAL WORKING TIME AND HOURLY AND WEEKLY EARNINGS

AMONG the influences which affect the supply of labor, or more accurately the supply of services of labor, is the length of the working period. This not only changes in the course of time but varies from industry to industry and even from plant to plant in some industries. How these differences in normal working time are related to the rate of wages is a question upon which opinions differ. Marshall and Pigou hold that the supply price of labor increases as the duration of working time increases. Thus, Marshall says that the hourly rate of pay will be sufficient to compensate "for the last, and most distressing hour."¹ And Pigou observes that where working time is not uniform in an industry, there is not a single demand and a single supply price for a quantity of labor. Rather there is a series of demand and of supply prices. These demand prices are "greater or less according as the work is done in longer or shorter day spells. . . . In like manner, there are a series of supply prices for this same aggregate quantity of hours, which are also greater or less according as the work is to be done in longer or shorter day spells."² Cassel, on the other hand, says that "there can be no question of an increased wage leading to longer hours of work. On the contrary, it is a normal feature of modern

1. *Principles of Economics* (1916), p. 527.

2. *Economics of Welfare* (1920), pp. 415-416. Since writing this the author has noticed that the quotation here referred to seems to have been omitted from the latest edition.

developments that the demands for shorter hours increase with wages."³

This question is not of theoretical interest only. It has a bearing upon many points which arise in connection with practical wage problems. Do hourly earnings tend to be the same for all workers in an industry, regardless of the number of hours normally worked per week? If not, do the plants with the longer week pay more or less per hour than other plants? And what is the relation between the length of the normal week and weekly earnings? Do such earnings tend to be the same in all plants? If not, are they higher or lower in plants where the normal week is longer?

Some light is thrown on these problems by the results of a wage survey made in April, 1927, among 83 metal manufacturing plants in Philadelphia, covering 25,459 employees in over 100 occupations.⁴ For purposes of detailed analysis seven standard machine-tool occupations⁵ have been selected here. In these occupations, which are very prominent in modern industry, there are 1,456 men distributed among 43 plants.

How great the actual difference in normal working time of plants was may be seen in Table 1. One plant had a normal week of 44 hours while eight had a week of 55 hours. Here there is a difference of 11 hours a week in working time. Most of the plants, however, had a normal week of from 48 to 55

3. *A Theory of Social Economy* (1924), p. 336.

4. This survey was in charge of Miss Anne Bezanson, Associate Director of the Industrial Research Department of the University of Pennsylvania, assisted by Miss Miriam Hussey of the same department, and Mr. Earl Sparks, Secretary of the Metal Manufacturers' Association of Philadelphia. The author's participation was confined largely to those occupations in which he had special interest.

5. Boring Mill, Drill Press, Engine Lathe, Milling Machine, Planer, Screw Machine, and Turret Lathe operating. For some purposes these occupations must be considered separately, but for other purposes they may be considered as a group. While there are mechanical differences and also differences in the qualifications and training required in connection with the different occupations, there is also much that is common among them, not only mechanically, but in the knowledge and training of the men who operate these machines. Moreover, the relative standard deviation for the combined occupations is about the same as for the individual occupations.

hours, or within a range of seven hours. But even a smaller range in normal time than this would seem to be large enough to have an important relation to wages.

TABLE I

DISTRIBUTION OF NORMAL WORKING TIME BY NUMBER AND PERCENTAGE OF MEN AND OF PLANTS

Normal hours per week	Men		Plants	
	Number	Percentage	Number	Percentage
44 and under 45	11	1	1	2
45 and under 46	56	4	3*	7
46 and under 47
47 and under 48
48 and under 49	585	40	10	23
49 and under 50	47	3	6	14
50 and under 51	69	5	2	5
51 and under 52	76	5	3	7
52 and under 53	100	7	4	9
53 and under 54	61	4	1	2
54 and under 55	86	6	5	12
55 and under 56	365	25	8	19
Total	1,456	100	43	100

* One of these plants has a few men on a 50 hour basis.

For purposes of analysis these different periods of working time will be combined into two: under 50 hours, and 50 hours and over. On the basis of this grouping, about the same number of men and of plants are found in each period, as the following compilation shows:

	Number of Men	Number of Plants
Under 50 hours per week	724	20
50 hours and over per week	732	23

In view of the fact that three different methods of payment were used quite extensively — time, piece, and bonus or premium — and since both hourly and weekly earnings differ with each method,⁶ it seems desirable to separate the data

6. Average hourly and average weekly piece work earnings tended to be higher than the earnings for time work and below those for bonus work. There was a marked tendency for a difference of 10 per cent and 20 per cent in favor of piece and bonus earnings, respectively, as compared with time earnings.

not only on the basis of occupations and normal working time, but also on the basis of method of payment.

TABLE 2

SUMMARY TABLE OF AVERAGE EARNED RATES FOR EACH OF
TWO PERIODS OF NORMAL WORKING TIME

Mean Rates per Hour (in cents)

Total Cases: 1,456

Occupation	TIME BASIS Hours per Week		PIECE WORK Hours per Week		BONUS BASIS Hours per Week	
	Under 50	50 and over	Under 50	50 and over	Under 50	50 and over
Drill Press Operating	61.7	55.4	66.3	56.7	73.2	64.0
Milling Machine Operating	64.2	63.4	67.4	68.7	77.7	87.1
Planer Operating	68.3	65.9	71.9	70.9	84.2	73.4
Turret Lathe Operating	70.5	64.4	70.7	71.0	84.3	68.2
Screw Machine Operating	65.9	58.3	72.7	53.8	76.2	80.1
Engine Lathe Operating	68.4	64.6	72.5	76.5	88.2	74.2
Boring Mill Operating	75.4	69.5	80.0	70.9	96.5	77.8
Combined Occupations	66.2	63.5	69.7	71.6	84.2	75.3

Table 2 gives the average hourly earnings, by method of payment, for each of the seven occupations and also for the combined occupations, for each of the two normal working periods. For the combined occupations, it will be noted, the average hourly earnings for men on a time basis of payment are 66.2 cents in the shorter and 63.5 cents in the longer working period. This same tendency holds with bonus payments. With piece work, however, the average hourly earning is slightly higher in the longer than in the shorter period. Three plants with relatively large numbers of piece workers, two of which have the same normal week, affect these averages somewhat. A similar situation does not occur with the other methods of payment. The individual occupations show the same tendency, altho not without exceptions. For example, the average hourly earning for drill press operators who worked on a time basis is 61.7 cents in the shorter and 55.4 cents in the longer period. Out of the 21 comparisons there are five exceptions, of which three occur with piece work. In short, there appears to be a fairly marked tendency for

hourly earnings, or hourly earned rates, to vary inversely with the duration of working time per week.

An opposite, but somewhat less distinct, tendency occurs with weekly earnings. From Table 3 it appears that weekly earnings tend to vary directly with the duration of working time. When the occupations are combined, the average weekly earning for time workers is \$30.53 in the shorter and \$34.15 in the longer period. The other methods of payment vary in the same way. With the individual occupations the tendency continues to manifest itself, but not without exceptions. For drill press operators working on a time basis, for example, the average is \$27.67 in the shorter and \$30.13 in the longer period. The exceptions, however, are more numerous than in the case of hourly earnings; out of 21 comparisons there are seven exceptions.

TABLE 3

SUMMARY TABLE OF AVERAGE WEEKLY EARNINGS FOR EACH OF
TWO PERIODS OF NORMAL WORKING TIME

Average Actual Earnings per Week
Total Cases: 1,456

Occupation	TIME BASIS Hours per Week		PIECE WORK Hours per Week		BONUS BASIS Hours per Week	
	Under 50	50 and over	Under 50	50 and over	Under 50	50 and over
Drill Press Operating	27.67	30.13	34.85	30.52	31.62	32.19
Milling Machine Operating	29.77	32.73	33.98	34.92	35.47	46.13
Planer Operating	40.76	37.77	34.52	37.69	34.36	37.69
Turret Lathe Operating	29.45	35.31	32.18	37.86	35.56	33.96
Screw Machine Operating	31.51	31.12	35.41	26.74	37.72	39.70
Engine Lathe Operating	31.09	34.56	34.75	40.46	37.47	38.10
Boring Mill Operating	31.53	36.91	38.08	37.12	41.51	41.34
Combined Occupations	30.53	34.15	34.87	37.78	36.14	38.33

Since variations between actual and normal time have more influence on weekly than on hourly earnings, it seems wise to consider separately the relation of differences in normal time to weekly earnings for those men who actually worked the equivalent of the normal time of their plants. Table 4 gives for these workers the same type of information as the pre-

ceding table gave for all the workers. Even though only about 50 per cent of the men actually worked the equivalent of the normal time of their plants, the situation is substantially the same in Table 4 as in Table 3. Earnings are larger in the longer week.

TABLE 4

SUMMARY TABLE OF AVERAGE WEEKLY EARNINGS OF MEN
WORKING FULL TIME FOR EACH OF TWO PERIODS

Average Actual Earnings per Week
Total Cases: 760

Occupations	Hours per Week		Hours per Week		Hours per Week	
	Under 50	50 and over	Under 50	50 and over	Under 50	50 and over
Drill Press Operating	27.96	27.88	31.05	27.30	35.73	37.86
Milling Machine Operating	30.53	33.45	33.15	31.83	37.30	44.72
Planer Operating	27.45	34.82	34.53	34.49	37.97	39.93
Turret Lathe Operating	33.92	35.12	31.13	35.29	44.11	35.16
Screw Machine Operating	31.79	28.35	34.39	31.09	37.72	39.27
Engine Lathe Operating	32.21	33.92	34.65	41.43	39.97	41.41
Boring Mill Operating	34.80	37.66	38.08	38.82	47.56	39.68
Combined Occupations	30.96	33.11	33.53	36.04	39.95	39.83

This analysis is subject to certain limitations. The first of these arises from the fact that the basis of comparison is the number of hours worked per week; while Marshall and Pigou referred to hours worked per day. The justification for the use of the week rather than the day is two-fold. Most market comparisons of working time are made on the basis of hours per week, it being almost impossible to pursue an analysis on a daily basis. For not only does the number of hours worked per week differ among plants, but even among plants where the number of hours per week is the same there are many combinations of days per week and hours per day in which the normal number of hours may be worked during the week. Such justification for the use of the week does not, however, alter the fact that certain aspects of fatigue are likely to manifest themselves in terms of hours per day rather than hours per week, and these influences may have a relation to hourly earnings which we have not been able to detect.

The other limitation arises from the fact that there is nothing in these data to show how variations in normal time are related to the ability of workers. If it were known that for each of the two periods of working time the distribution of ability was the same, the evidence afforded by this investigation would be more conclusive.

Making allowance for these qualifications, the figures here presented do not appear to support the view of Marshall and Pigou that hourly wage rates tend to be higher when the working period is longer. For the seven occupations combined and for each occupation separately the average rate per hour shows a strong tendency to be higher in plants where the normal week is shorter. The "last and most distressing hour" is not associated with a higher rate per hour. Weekly earnings, on the other hand, are greater in plants having the longer week in two thirds of the cases recorded. No doubt the number of cases is too small to warrant very definite conclusions, and the use of averages may conceal many exceptions. But there seems to be some ground for believing that the relation between the wage rate and the length of the working period is more complicated than Marshall thought.

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COMPARATIVE COSTS IN THE WORSTED- CLOTH MANUFACTURE, AMERICAN AND FOREIGN

DATA upon the relative effectiveness of American and European industries, not based on pecuniary measurements, are so scarce that the student of international trade looks with lively interest at any information on the subject that comes to light. New and promising evidence is offered in a recent number of the *Monthly Labor Review* on the effort (labor-time) expended, and the wage payments involved,

in various stages of the wool-cloth manufacture here and abroad.¹

The first impression, however, is one of disappointment. Despite the earnest endeavors of the Labor Department's representative, Mr. Charles E. Baldwin, the returns are open to the following criticisms.

(1) Of the data presented, those on the worsted branch of the wool-working industry alone are adequate. Comparatively few details appear with reference to the woolen-cloth manufacture. Nor is the situation much improved if one adds to the few data on cheviots and woolen cloakings those upon the hybrid fabrics in the construction of which a woolen weft is combined with a worsted warp — goods which partake chiefly of woolen-cloth characteristics.

(2) Even on the worsted-cloth manufacture, again, the evidence is for the most part sufficient to support conclusions of a worth-while character in one respect only — relative conditions in the United States and in England. In a single case of comparison between the situation here and in Germany — that of worsted weaving — data, to be sure, are fairly satisfactory; but the German figures on other manufacturing processes, and all the French figures, are too fragmentary to deserve consideration. One cannot be sure that the cases are representative.

(3) Especial care in the use of assembled data becomes necessary as the exact nature of the material is perceived. The information presented in the *Review* shows merely the man-hours required for a single process (or series of processes) as carried on in specific mills in the United States and in England, France, or Germany. Starting with a group of typical domestic fabrics, effort was made merely to find a mill in the United States and a mill in England, or France, or Germany, both of which manufactured each specific type of cloth, and

1. *Monthly Labor Review*, September, 1928, pp. 1-26.

A valuable critique of the data there contained has already appeared in *The Conference Board Bulletin* for December 15, 1928, pp. 192-195, which was reprinted in the *Bulletin of the National Association of Wool Manufacturers* for January, 1929, pp. 36-42. The following is an attempt to bring out certain features of special theoretical interest.

then to secure information from these mills. In short, the reported data are in no sense averages, nor do they necessarily pertain to representative mills in the several countries. Only evidence from a considerable number of cases could be expected to disclose typical differences.

(4) Even when the data are sufficient for such individual comparisons, no more than labor (effort) costs may be secured. The information does not show, and does not pretend to show, total money costs of production. No attention is paid to expenditures for raw material, interest on capital employed, wages of management, overhead, and the like. One thing only is compared adequately — relative labor effectiveness.²

None the less, much that is significant appears. In the first place, when comparison runs between American and English worsted-cloth mills, sufficient material is presented to show the relative expenditure of labor in terms of man-hours per unit of product for the processes of top-making, yarn-production, dressing and weaving, finishing and dyeing, and packing and shipping. Secondly, the costs in direct wages payments for these several worsted processes in the United States and England are also obtainable. And, thirdly, comparative effectiveness of the weaving stage in American and German mills may be made out with fair accuracy. In the

2. Other difficulties observable in the assembled data might be adduced — for example, the "estimated" division of working time in the case of certain employees who "worked more or less interchangeably on two or more kinds of product," or the type of domestic mill from which information on portions of the manufacturing process was derived. The latter point is specially important.

The report in the *Monthly Labor Review* is indefinite on this score. After stating that mills in this country generally are integrated, Mr. Baldwin indicates that there are some specialized establishments, and that "it was possible, therefore, to find in the United States single establishments that could furnish complete information of time and labor costs of each sample" (p. 3). Internal evidence, however, such as the detailed information on the several cloths, suggests that the data on the American side were largely taken from integrated domestic establishments. For example, the information from "English mills" is frequently contrasted with that from an "American mill." If reliance was in fact placed on evidence from specialized American establishments, less value must attach to the figures, as such concerns can hardly be taken as representative of the American worsted-cloth manufacture.

worsted-cloth manufacture, as it happens, the processes and the machine equipment do not differ materially for the two sides of the Atlantic. The worsted branch of the wool-working industry was not brought to the United States until the technique of operation had been worked out; we imported both that technique and the apparatus for carrying it on; and our machinery is still largely of foreign construction. There are, to be sure, some exceptions — notably weaving with American-evolved automatic looms, and the general stage of finishing and dyeing, where processes still differ appreciably. Bearing in mind this general situation, comparisons are possible between foreign and domestic productive results, which, pointing as they do to conclusions as to relative effectiveness of operation, make the investigation well worth while.

Taking up, now, relative conditions in England and the United States, and restricting ourselves to those processes in which substantially the same technical equipment is employed in both countries, we may attempt a summary of the data. By thus limiting observation for the moment to cases where machinery and processes are roughly similar, we can secure evidence on the relative *efficiency* of workers in the

ENGLISH PERFORMANCE COMPARED WITH AMERICAN
(American = 100)

Stage of manufacture	No. of cases	Man-hours required		Wage-payments involved	
		Spread	Median †	Spread	Median †
Top-making	10	50-92	84	30-53	44
Yarn-production *	9	83-160	138	37-53	47
Dressing and weaving (same number of looms)	8	81-150	100	43-136	67
Packing and shipping .	9	298-573	401	160-350	266

* One case was excluded since the figures were so much out of line with the rest as to raise doubt as to their accuracy.

† Medians here presented are the mean of middle terms.

two countries operating in their respective organizations — a feature of different import from the relative *effectiveness* of workers operating with varying equipment in two or more areas.

The thing important for the doctrine of comparative cost is

the amount of effort (man-hours) involved in the several processes in the two countries. Given the higher general wage level in the United States, only those manufacturing industries which economize in the use of labor can be expected to prosper here. When we look at the above tabulation, there seems little evidence favorable to the American worsted manufacture. In the tag-end of mill work (packing and shipping) domestic mills do uniformly excel — and excel in a marked degree — both as to the labor “costs” in the economist’s sense and labor “costs” in the accountant’s. But this superiority, based, it seems, chiefly upon the large-scale operations of American establishments, is of negligible importance in the determination of competitive positions.

We economize also on labor in drawing and spinning. In the conversion of tops into yarn, domestic mills show an appreciable advantage. In fact, only one case among the nine for which there are data shows an expenditure of man-hours less in England than in an American mill on similar work. This superiority of domestic mills is not easy to explain. Probably it arises because of the larger units of manufacturing operation here. By reason of standardization of product and resultant general large-scale activities in American establishments, drawing and spinning operations proceed on heavier weights of yarn than in English mills, despite the specialization of the latter and their consequent devotion to the conversion of tops to yarns. Unfortunately, however, another circumstance, to which reference will be made in connection with the wage payments, seems to prevent the domestic industry from securing any advantage in money costs from its labor-saving power.

In top-making (the conversion of raw wool into tops), expenditure of effort is lower in English than in American mills for all of the ten cases reported. On the average, only about five-sixths of the energy called for in domestic establishments is required in English plants for corresponding tasks. Since domestic and English mills generally utilize the same machines, whether scourers, cards, combs, or minor apparatus; and since the dominance of the “machine process” and the

widely recognized low character of British labor in the combing sheds would tend to eliminate the possibility of greater personal efficiency for such workers, the greater effectiveness of labor in England must be ascribed to the specialization of plants there. Top-making in England is typically the sole business of particular mills, whereas in this country top-production is chiefly one part, and a minor one, in an integrated worsted-cloth manufactory. Specialization has led to some standardization of product in English top-making; this in turn has encouraged large-scale operations; and a further gain is derived from a condition which is frequently (tho admittedly not necessarily) related to specialization — namely, the operation of combing mills on a doubleshift basis. The latter circumstance prevents the cooling of the combs, as well as the other more general interruptions of the manufacturing process which unavoidably occur in American mills, and accordingly leads to greater output per hour of labor.

The dressing and weaving stage shows equality. In some cases the man-hours expended in American mills were found to be less; in some they were found to be greater; the median works out at exactly 100. In this stage of manufacture, however, it is possible to penetrate a little further, thanks to additional and more detailed information supplied with respect to weaving. It appears from these new data that American mills generally run their looms a bit faster, 125 as compared with 120 picks per minute; but that a comparison on the basis of production per weaver is less favorable to American workers than that per man employed in dressing and weaving combined. Of the eight cases with respect to which we have data, the American weaver excels only in three — and of these three, two by less than 10 per cent. On the other hand, English superiority in three out of the five other cases runs as high as 37 to 48 per cent. These cases — cases which involve the production of goods with single-yarn warps — are of some special interest, of which more later.

Lacking greater effectiveness in top-making and weaving, the American manufacture at these stages inevitably exhibits higher wage cost, i.e., labor cost in terms of money.

In one case of weaving, wage cost in England is reported as higher than the corresponding cost in the United States; but with this exception the cost for either top-making or weaving in English mills never is more than 70 per cent of American expenditures for similar work. As the tabulation indicates, the median values for the ratios of English to American wage cost in these departments are 44 and 67 per cent, respectively.

In the less important stage of packing and shipping, the marked superiority in labor effort by American establishments already referred to results in lower wage cost. While in these operations there is considerable range in the ratios between English and American mills, the evidence indicates that English wages costs are something better than two and a half times the corresponding American ones. In yarn-making, however, the more important case of productive superiority, American mills are unable to reap a net advantage in terms of lower wages costs. Despite the fact that English mills on the average require nearly 40 per cent more man-hours per unit of output in the manufacture of worsted yarns, they pay their workers less than half what domestic mills have to pay in that production. This seems to be largely the result of a different stratification of wage scales in the two countries. Adult female workers, who constitute a large portion of the operatives in the drawing and spinning processes both here and abroad, secure in England (as do women in many other English occupations) substantially lower wages relative to adult male labor than do women workers in the United States. The women workers in England may be said to form a non-competing group (if that term is permissible) whose specially low wages give to the industries in which they are employed a competitive strength not derived from their productive efficiency.

Turn now to the relation between American and German conditions in the weaving operation, for which, as already suggested, a fair amount of data is presented. Here again we compare a branch of the industry in which technical equipment is substantially the same in the two countries — cases

in which a similar number of looms per worker is employed—and we find that the man-hours required in the combined stage of dressing and weaving rarely exceed those of American mills, and sometimes run as low as 50 to 65 per cent of the latter. This evidence of German superiority, however, relates almost wholly to cloths made with single-strand warps, for which alone information is adequate. As in the English-American comparison, foreign producers appear to have an advantage with respect to such goods. In regard to productivity in weaving alone, on the other hand, the position of the German mills is reversed. German weavers rarely produce as much in a given time-period as American weavers; in but one case out of the half-dozen does this occur. For the most part—even in cases involving singles-warp fabrics—the output of German workers amounts to between 80 and 95 per cent of that of their American competitors. There is a suggestion, nevertheless, that the weaving of some singles-warp goods is comparatively better circumstanced in Germany than is that of other types of fabrics. While for the single case cited, the data on efficiency in the weaving of goods of double-ply yarns indicate a German productivity equal to only 79 per cent of the United States, some cases of weaving of singles-warp fabrics show relative productivities of 86, 95, and 107 per cent.³

Somewhat different questions arise where there is not the same equipment, but varying technique or varying machinery. This is the case with finishing and dyeing, and also with dressing and weaving when the weavers are required to tend different numbers of looms. In finishing and dyeing, comparison is less easy, chiefly because of the varying procedures followed by American and foreign manufacturers in imparting “finishes” to fabrics. The finishing and dyeing operations

3. The general cast of these data does not inspire confidence; and one is led to doubt whether they relate to typical conditions. It will be noted that while German workers approach within 20 per cent the efficiency of American workers in the weaving stage alone, the man-hours required for dressing and weaving combined are much higher here than in Germany. Greater capacity in the dressing process seems quite insufficient to explain such a marked discrepancy.

are, on the whole, less subject to standardized "machine process" than top-making, spinning, or weaving; and particularly as between countries, the number and sequence of operations deemed necessary in the production of a "finish" of a given sort vary appreciably. Moreover, the apparatus utilized differs more between countries than does that of other processes. Consequently, one is not surprised to find a wide variation in the relative effort required — for example, as between the United States and England — in the finishing and dyeing of the cloths as here given. English mills are reported to expend all the way from 55 to 720 per cent of the man-hours required for corresponding work in American establishments; and there is no tendency for the ratios to center around any modal point.⁴ It does not seem possible to draw any significant conclusions.

Disappointment of another sort rules for the cases in which weavers here and abroad operate varying numbers of looms: here little can be said that is not fairly obvious. The automatic or bobbin-changing loom has been much more extensively introduced in the United States than in Europe; and instances are presented in which, for the weaving of specific cloths, domestic mills require a single weaver to tend four, six, and even twelve looms of this type; while abroad no case is reported in which a worker "minds" more than two looms.⁵

The productivity per weaver is of course much enhanced by the use of automatic looms; since, first, the speed of the apparatus is at least as great as that of non-automatic machines; and second, the production per loom is high compared with the performance of non-automatic apparatus used in

4. Ratios in the nine cases for which we have data are as follows: 55, 57, 65, 70, 132, 160, 234, 478, and 722.

5. It may be observed that in cases of weaving on other than automatic looms the American mills seem to demand more of their weavers than foreign concerns. They appear to equip their workers more abundantly with suitable apparatus. No instance is given in this report of an American weaver tending less than two ordinary power looms; though occasionally in English mills — and more frequently still in German establishments — a weaver is found tending a single loom. In two instances, where American weavers are supplied with six looms apiece, German weavers toil along with only one. In these cases the American weaver is producing more than eight times the yardage of the German.

foreign countries (for which alone do we have comparable figures on production). In general, production per weaver is in almost the precise ratio to the number of looms tended in the United States and abroad.

Curiously enough, the American cloth manufacturers seem to have been unable to turn to money account the advantage in labor cost (effort) shown in the greater productivity per weaver from the use of automatic looms. That is, wage costs, or money labor costs, are on the whole as high per yard of product as in England. The English weavers turn out less yards, but are paid the same wages per yard. In the seven cases where comparisons can be made between domestic and English conditions, only two show marked differences in weaver's wage expense per yard of product: one where the Englishman receives 94 per cent more than the corresponding American, and one where he receives 40 per cent more. In the five other instances, English workers secure from 85 to 106 per cent of the wage-rate per yard which the American weaver with his automatic looms receives. In other words, the American manufacturer, while incurring the greater interest charge that comes from the higher cost of automatic machines, pays the weaver substantially the same wage per unit of product as the foreign weaver is paid. The domestic manufacturer, of course, is *relatively* better off when using the automatics. When both he and his foreign competitor are using non-automatic apparatus, wage costs in England per yard of output run as low as 33 to 62 per cent of the American rates on similar fabrics.

A few words more along another line. The foregoing comments have related chiefly to specific mechanical stages or processes. But can anything be inferred from the assembled data with regard to the types of cloths in the production of which the domestic manufacture shows aptitude or the reverse thereof? The answer must be, little. Unfortunately the report says nothing of the stock which went into the making of the several fabrics, nor does it present sufficient data on the weave structure. These are important elements in determining the quality and prices of the goods. Without

information on them one gropes blindly when attempting to divide the various fabrics embraced in the investigation into the vague classes of fine, medium, and coarse. Even a division between all-wool goods and those in which cotton yarns are incorporated leads us nowhere. Only three cotton-warp fabrics, and only one with cotton filling, are covered in the inquiry; and the cotton-warp goods, tho more numerous, are of quite varied character. For example, the warps are severally single 45s, two-ply 24s, and folded 36s and 120s. Hence all that can be deduced from the evidence collected, when analyzed with respect to types of cloth, relates to those goods, already mentioned, in which a single wool yarn is employed for warp. These are women's dress-goods, light in weight, and probably of fairly high quality. In three cases, comparison is possible between American and English mills, and in five cases (including these three cloths just mentioned) between American and German establishments.⁶ Even for these eight cases comparison must be always restricted to the weaving stage, or at most to dressing and weaving. As already pointed out, data on dressing and weaving combined, either as regards man-hours required in these fabrics, or wage expense involved, do not place the English mills high relatively to American — that is, high as compared to relative effort and expense in the manufacture of other cloths. In weaving alone, however, the story is different. Altho weavers in these cases operate the same number of looms in both countries, English productivity per weaver appears to be relatively greater, i.e., high relatively to other fabrics for which comparisons are possible on similar bases; and the wage rates per yard are relatively lower, i.e., they bear a smaller proportion to American wage rates than is true of most other cases.

Germany, however, holds a peculiar position with respect to these cloths of singles warp. In dressing and weaving, German mills use only 50 to 70 per cent of the man-hours per unit of product required in American mills, and the ratios of wages expense are unusually low — 45 to 60 per cent. As

6. One case is omitted in which the American mill employed four looms per weaver, and the German only two.

to the weaving process alone, productivity per worker is uncommonly high—running from 70 to 107 per cent of American performance; and the wage expense per unit of output is quite low—only 37 to 49 per cent of American rates. German mills appear to be more dangerous competitors of American establishments with respect to such fabrics than to other lines.⁷

Summing up, one may say that in so far as the data assembled by the Bureau of Labor Statistics permit conclusions, they indicate a situation only differing in a minor degree from that outlined elsewhere.⁸ They enable us to understand a bit better than before the details of the situation with which the worsted-fabric producers are confronted; and they confirm the judgment previously reached that even in the worsted-cloth manufacture, where large-scale operations and a certain amount of standardization of product exist, little advantage in "effectiveness" or "labor cost" appears in American mills. The United States possesses no such general superiority in technical equipment or industrial organization as to enable our domestic manufacturers to pay the high level of wages imposed upon them by the dominant industries of the country.

7. Note should be made of the discrepancy already mentioned above, p. 557, note 3.

Qualification of the view just expressed regarding the production of fabrics in which warps of single-thread yarns are employed, is to be found in a case not included in the group above discussed. This case, involving a fabric in which the warp threads are of a coarse count, is woven in the United States, it appears, upon automatic looms. The number of such looms tended by each weaver on this work is less than that assigned in the production of other fabrics—four in place of the usual six—but at any rate, domestic manufacturers have succeeded in weaving this particular fabric by employment of the new device. Under these circumstances, German productivity in weaving is relatively lower than in the cases summarized in the text. Output in the German mill—which assigned only two looms to a weaver—is but 49 per cent that of the American mill, and the wage cost there is as high as 84 per cent that in the latter.

8. For example, see Professor Taussig's *Some Aspects of the Tariff Question*, pp. 342-348, and A. H. Cole's *American Wool Manufacture*, ii, 37, 38.

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